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CONSTIPATION AND INTESTINAL TOXEMIA.*

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I

From time immemorial constipation has been recognized as a source of discomfort and disease. It is known that the intestine harbors enormous numbers of bacteria some of which, at least, are capable of producing poisons, and also that many bacterial poisons generated outside the body, notably the Botulinus poison, are capable when taken into the intestinal tract of producing grave sickness and even death. Such considerations have led to the assumption on the part of both physician and layman that the intestinal tract is a fruitful source of disease; and the terms "autointoxication" and "intestinal toxemia" have become household words. To this source has been ascribed at one time or another almost every ill to which human flesh is heir.

Much has been written upon the toxemia which presumably accompanies intestinal stasis, but unfortunately conclusions have as a rule been based upon indefinite, vague clinical impressions rather than upon carefully controlled scientific observation. It would seem profitable, therefore, to take stock of our actual knowledge of the effects of constipation and of so-called intestinal toxemia—not what we surmise, but what we actually know.

In the first place, we must accept without question the fact that constipation produces a well defined train of symptoms. The experience of everyone testifies that fecal retention may be accomplished by mental hebetude, headache, malaise, inertia, bad taste in the mouth, and bad breath; and clinical experiments has shown that it results even in a definite lowering of mental and physical efficiency. Then, too, we know that certain psychoses and other nervous diseases are made worse by constipation and at times relieved by regular evacuation of the bowels. Evidently, constipation is a deterrent to health and may even produce actual disease.

In what way does constipation produce these deleterious effects. Is it or has it been widely assimulated through the absorption from the intestinal tract of poisonous substances? Or it is in other ways? And if the former, what are the sources of these poisons and how do they act? To answer these questions we must inquire into the nature of these intestinal poisons and their effect upon man. This includes the study of both food decomposition products and the synthetic products of bacterial activity.

II

Among the foods, we can for the sake of brevity dismiss at the outset carbohydrates and fats. True, these two food-stuffs are prolific sources of trouble in certain altered metabolic states, such as diabetes mellitus,

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and also in the diarrheas of infancy, but as sources of intestinal poisoning in adults they may be disregarded. It has been the custom to place all, or almost all, of the blame upon the products of protein decomposition.

The poison of this group which has been most feared and most widely discussed is Indican, a derivative of Indol. Indican has been accorded a voluminous literature, almost all of which for our purposes is worth less because it is based upon vague, inaccurate observations. The time was when, as a routine measure, the urine was tested for indican in the expectation that it would give valuable information as to the existence of intestinal "stasis". A few clinicians still attach importance to the presence of this substance in the urine, but by the vast majority the indican test has long since been placed in the discard.

In order to clear up this question more definitely, investigators have taken up in an exact manner the experimental study of the poisonous effects of indican. Time will permit merely a brief survey of this work.* Nesbitt found that a dog could without injury receive intravenously twenty times as much indol as is daily excreted by man. Hertea observed that indol was toxic to dogs when given daily by the intravenous route and that in this way nervous and nutritional disturbances and eventually death could be produced. The amount of indol thus required, however, was much larger than the greatest amount ever formed in the intestine of man. Wooley and Newburg, and other investigators, in like experiments reached similar conclusions. It became obvious, however, that intravenous administration to animals and oral administration to man are essentially different, which fact led Herter to adopt the latter method of experiment. He found that excessively large doses of indol taken by mouth will produce in man dizziness and other disagreeable symptoms, but that smaller amounts, comparable in any degree to that generated in the intestine, were without effect.

Many people though in excellent health show at all times large amounts of indican in the urine. In spite of the interest manifested in this subject no one has ever been able to connect indicanuria with any definite disease. We are forced to conclude, therefore, that the absorption of indol from the intestinal tract and its appearance in increased amounts in the urine is not of clinical significance.

There are other protein decomposition products, notably Skatol and the Phenols, which are sometimes regarded as intestinal poisons, but when these are subjected to critical scrutiny and to animal experiment, as little evidence can be gathered against them as against Indol.

Histamin, a derivative of the amino-acid histidin, is formed in small quantities in the bowel and has been suggested as the cause of the low blood pressure often observed in chronic intestinal invalids. It has been shown, however, that this substance is quickly destroyed by the bacteria which normally inhabit the bowel and perhaps by other agencies as well. It is evident, too, that if enough histamin were absorbed to produce low blood pressure it must also, through its known action on smooth muscle fiber, produce other more graphic symptoms.

Many other protein decomposition products have been studied by means of animal experiment and exact clinical observation with equally negative results.

III

Concerning the absorption during constipation of those chemical poisons which conceivably result from bacterial activity, there is a two-fold argument against this as a disease factor. First, those organisms ordinarily found in the bowel do not produce soluble endotoxins; and second the

*This entire subject has been completely summarized by Alvrez, to which the reader is referred.

vast majority of bacteria, through a drying process, die in the large intestine (where practically all stasis takes place), and thus become incapable of producing anything. The greatest degree of bacterial activity is in the small intestine where there is no stasis of fecal matter and which therefore does not concern us in this discussion.

True, there is a profound change in the nature of the intestinal flora, in certain of the diarrheas, especially in children, and other bacteria come to predominate. These other more virulent organisms produce soluble poisons which are absorbed from the fluid intestinal contents and which may cause grave illness. Such intestinal poisoning of bacterial origin is one of the features of the acute diarrheas, but it does not come within the scope of this paper.

About twenty years ago great interest in the subject of intestinal toxemia was excited by Metchnikoff's assertion that the changes of age are brought about by the slow absorption from the intestines, of soluble bacterial poisons, and that by substituting the lactic acid bacillus for the normal intestinal flora we could halt these progressive changes. Suffice it to say, that experience has not confirmed these generalizations of Metchnikoff, and also that more recent bacterialogical studies show that the bacillus in question does not, as was once thought, thrive in the lower portion of the intestinal tract. It now appears that the lactic acid bacillus cannot successfully be made to replace the normal intestinal flora.

Interest in this, however, has served the useful purpose of directing attention to another organizm, the Bacillus Acidophilus. This bacterium has been shown to grow readily in the intestinal tract, particularly in its lower portions, and through its fermentative activity to be of genuine benefit in correcting constipation. It may be of value too, in the diarrheas of infancy, to which allusion has just been made, by substituting the Bacillus Acidophilus for the harmful invaders. When satisfactory Bacillus Acidophilus milk cannot be obtained it often suffices to prescribe large quantities of milk sugar—say, three or four ounces daily. Lactose in such amounts favors the growth of this organism to the exclusion of others and thus accomplishes to a certain extent the same purpose as the more direct administration of the Bacillus.

In considering the poisons which conceivably can be produced in the intestinal tract and the diseases which may follow their absorption, we often lose sight of the fact that the body is in possession of two effective means of defense. First, the intestinal mucosa, presents a strong first-line barrier; many substances cannot pass through the epithelial lining and others while passing are destroyed or rendered innocuous. Second, the liver as the great "detoxicator" of the body either destroys outright those poisons which reach the blood stream or by a process of coupling, it renders them harmless. Were it not for these two barriers the story of "intestinal toxemia" would perhaps be different.

IV

Thus far we have discussed the absorption from the intestinal tract of chemical poisons, and have been unable to find, except in the acute diarrheas, direct proof that such poisoning takes place to an appreciable extent. There is another aspect to this question, however, and yet it is of paramount importance—namely, the passage of bacteria themselves through the wall of the gut. It has been shown that such bacterial invasion does take place and that it is in all likelihood a fruitful source of trouble. Adami called this process "latent" or "sub-infection".

The internal organs are not, as we once thought, sterile always in health, for examination of the mesenteric lymph nodes and other organs in the lower animals show that without evidence of disease they frequently harbor viable, though latent, microorganisms. Small numbers of bacteria make their way from time to time through

the intestinal wall and although the majority of these are killed in the lymph nodes, a few occasionally succeed in gaining foothold and thus in establishing latent infection. Later, these may proceed still further and gain access to the liver. Thus, through this process of "sub-infection" there are produced constantly increasing minute insults to the liver and finally obvious disease. We can picture to ourselves cirrhosis arising in this manner. What has been said of the liver applies equally well to the joints. It would seem that a great deal of the trouble ordinarily ascribed to intestinal toxemia of chemical nature could more properly be laid at the door of repeated sub-infection of intestinal origin.

To summarize, then, the arguments for and against the clinical importance of a true intestinal toxemia, we can say first, that here are unquestionably formed in the intestinal canal, chemical bodies which when introduced into the general circulation in sufficient amounts are poisonous, and second that clinical experience has given to many carefully observant physicians an abiding belief in the absorption of such poisons as a potent cause of disease; while against this we can argue, first that such known poisons when taken by mouth in comparable amounts cause no trouble, second that the body possesses two effective lines of defense which prevent ready access of intestinal poisons to the blood stream; third that neither animal experiment nor clinical experience has ever actually proven that any definite disease results from intestinal toxemia of constipation, and fourth, viable bacteria frequently pass from the intestines to the inner organs, causing at times actual disease. Sub-infection of intestinal origin, therefore, rather than chemical poisoning is probably the most fruitful source of trouble.

To return to the discomforts of constipation, if not due to intestinal toxemia what, then, is the explanation of these discomforts. When evacuation of the bowels has been accomplished, relief is immediate; and yet it is evident that if absorbed poisons were the offending cause, this relief could not possibly be so quickly experienced. As Alverez very aptly puts it, we can just as well talk of sobering a drunken man by taking the bottle out of his hip pocket. Some other explanation must be sought. The suggestion has been repeatedly made, and this seems most reasonable, that the disagreeable symptoms of constipation result from pressure of the fecal mass in the lower bowel, pressure both upon a sensitive mucous membrane and upon the pelvic nerves. Alverez suggests an additional and perhaps an equally important factor, reverse peristalsis. This reverse peristalis carries some of the intestinal contents back into the stomach and may even transport material from the stomach still higher. The discomfort and distress of an overloaded gut is genuine, but nevertheless in last analysis it would appear to be of nervous origin.

This explanation recognizes not only the direct effect of pressure from the fecal mass but also the contributory influence of individual nervous susceptibility. It is only by taking into consideration this factor or individual susceptibility that we can account for the wide differences in the way in which people react to constipation. Thus while the majority for comfort and health, must have a daily bowel movement, there are others with a lesser degree of susceptibility, who are content with an evacuation at intervals of two or three days. Numerous instances have been reported of people who empty the bowels at intervals only of several weeks, and occasionally we hear of a person who, while maintaining apparent health and attending to his daily duties has a bowel movement only every three or four months. But most remarkable of all was the case reported by Gieb and Jones of a man who went a year and three days without a bowel movement, during most of which time he was in comparative health. From a consideration of these wide variations in individual response to an overloaded

colon and the immediate relief which follows evacuation, we are forced to the conclusion that the discomforts which ordinarily accompany this condition are not due to the absorption of poisons but are dependent upon reflex nervous stimuli.

Question may arise here as to the explanation of the rapidly fatal disturbances, which accompany obstruction of the bowel in its upper portions. In spite of a great deal of animal experiment there is much that is still obscure about the nature and origin of the poison evidently formed in an obstructed small intestine. It is clear that this is an extremely acute process and that this type of obstruction is essentially different from stasis in the large intestine. In comparing the two we should not lose sight of the fact that from a physiological standpoint the large intestine is little more than a reservoir, designed to store feces over a considerable period of time or until it is convenient for the animal to empty the bowel, while on the other hand the function of small intestine with its rapidly moving contents is an essentially different one, and therefore the stasis in the one is not comparable to complete leakage of the others.

Recognizing then, that constipation has definitely baneful influences, the question of treatment is of great importance. There are three kinds of constipation,—first, that in which the evacuation of the bowel is infrequent, second, that in which evacuation occurs at proper intervals but is insufficient in amount, and third, that in which the feces are abnormally hard and dry. These conditions may be brought about by either of two factors: first, the fault may lie in the musculature of the bowel,—either a weak muscle or disturbed enervation; or second, it may be in the character and quantity of the fecal mass, —in last analysis is the kind of food eaten. Often both causes are operative. The object of treatment then, should be first, to improve the muscle tone of the bowel; second, to restore normal reflex activity, and third, to insure a bowel content of proper amount and consistency.

Because the trouble can be traced most often to faulty habits attention should first be given to good hygiene. It is essential that complete and emphatic instruction be given. First of all comes regularity of habit. The patient should go to the toilet at a definite time each day, preferably after breakfast because the awakened movements of the early morning usually carry forward the fecal mass to the descending and pelvic colon, but whatever the time chosen, he should visit the toilet invariably at that hour and make the effort even though no desire is felt. It should be said, too, that should the desire for defacation come at any other time it should receive immediate attention. Postponement to a more convenient time is, especially in women and in school children a frequent cause of constipation. We are all creatures of habit and a good habit in this direction should be inculculated early and preserved always.

There are other frequently neglected factors which make for success or failure. Chief among these are comfort and leisure. The room should be sufficiently warm, the person should be thoroughly comfortable and he should not be in a hurry. For many men the smoking of a cigar permits relaxation and brings into play those stimuli which initiate and carry forward the act of defecation. The reading of a newspaper or an interesting book acts in like manner. These precautions do away with the totally inhibitory influence of haste, nervous excitement and the fear of failure.

The position of the body is important, in that a stooping posture gives the abdominal muscles best opportunity for effective action. For this reason children should not be permitted to sit on a toilet with the feet dangling over. For the adult as well as the child, a small foot-stool which elevates the legs and knees is oftentimes of great help.

Something should be said of the genuine importance of psychotherapy in the cure of

constipation. Dubois and Dejerine as well as other writers emphasize the inhibitory influences of fixed ideas—ideas which lead to the belief and fear that the bowels will not move. Effort should be made always to eradicate these phobias. The patient should be told that to miss a day or even two or three days is, after all, without danger to health. If he can be induced to quit worrying about it and make up his mind that with a little patience his bowels will eventually function properly he will often be rewarded. Certain it is, psychic influences play a contributing and at times even a determining role in the continuance of constipation. Successful treatment demands that these be combated.

The musculature of the bowel can be stimulated to better functional activity in two ways: first by breaking the vicious circle and starting regular habits, and second by improving the muscle tone of the entire body. I have never been able to accomplish by abdominal massage the great things which have sometimes been claimed for it, and my own feeling is that attention to general muscular development is best. Walking is the best form of exercise; golf is fine. There are certain systems of exercise which may be taken in the bedroom on arising and which are good if consistently carried out. In the matter of exercise as well as of other regularity of habit, it is of great importance that the patient understand the necessity for persistent, long continued and sustained effort.

In the correction of constipation the character of the bowel content is perhaps the most important single factor. A concentrated diet leaves in the bowel a small amount of hard, dry, lumpy residue which irritates the mucora but does not promote normal propulsive movements. For proper function the bowel should have a relatively large soft content which gives the right sort of impulse and is easy to propel, and for this, the food should furnish an abunddant residue of undigestible matter. A diet containing an abundance of cellulose is best because this substance, being indigestible, leaves a large residue which under the influence of bacterial activity ferments and gives a soft consistency to the bowel content. We should advise an abundance of vegetables particularly the green variety, such as lettuce, spinach, cabbage, asparagus, onions and tomatoes, Orange, marmalade, other preserved fruits and honey are all of help. Stewed fruit, especially pruns, figs and rhubarb are effective and make a very nice dish when added to any of the cereals and taken with cream. The value of fresh fruits is usually appreciated but should nevertheless always be emphasized.

We hear it said in this connection that whole wheat bread is better than white bread. This is true because of the bran contained in the former and yet I much prefer to permit the patient the more palatable and easily obtainable white bread and then to instruct him to add to the morning or evening meal a dish of ordinary bran. It is not necessary to prescribe any of the especially prepared more elegant forms of bran, for they are no more effective than plain washed bran, the kind we feed to the cow. The latter when taken with a little stewed fruit and cream is not an unpalatable dish. Occasionally the patient does not eat enough bread and butter. Also, the necessity for a sufficient amount of water should be emphasized.

Agar is another substance, which is an effective aid in our efforts to change the character of the intestinal content. This gelatin-like substance when taken into the bowel absorbs water and on mixing with the food gives a large bulky intestinal content, just the kind which favors the proper propulsion forward of the fecal mass. Agar may be mixed with bran or other breakfast food; or it may be taken straight. A tablespoonful twice daily usually is sufficient. Since Agar corrects an actual fault and relieves constipation by bringing about within the bowel a normal physiologic condition, I greatly prefer it to the mineral oils so commonly used. There is

one small objection, however to both agar and bran. In absorbing fluid these substances incidentally absorb also a certain amount of the dissolved nutritive substances which otherwise would be taken up by the intestinal villae. With sufficient agar we can create a negative nitrogen balance in an individual who previously was in nitrogen equilibrium. This does not seem to me, however, to be a serious fault.

I do not think anything need be said regarding drug stores since the particular drug used is a matter of personal bias. It can be safely said, however, that with proper hygiene, patience and long persistency and with an intestinal content of the proper kind, drugs will seldom be necessary.

Finally, further emphasis should be laid upon the importance of persistency. Constipation of many years standing cannot be corrected in a day. Persistency and patience are the requisites of success. The necessity for persistent sustained effort should be explained and the patient should be told that he must have the benefit of a full year of such effort before he begins to tire or becomes impatient. If he is consistent in his endeavor he will usually be rewarded long before this time has expired.

DISCUSSION.

Dr. L. S. Lippincott (Vicksburg): I think this paper is very timely. We see a lot of chronic constipation and stasis. There are several points I would like to bring out. First, I want to defend the test for indican to some extent, because most people believe now that when you find a marked increase of indican in the urine, it means putrefaction in the small intestines. It does not indicate stasis in the large intestine. It is especially valuable, therefore, in cases where you suspect acute obstruction of the small intestine. In those cases you do have a marked increase of indican and it does help in making the diagnosis.

In regard to absorption of bacterial products, the Doctor says that most of the bacteria are dead. As I understand it, the organisms of the colon group, which make up much of the intestinal contents, have an endotoxin, and that endotoxin is not liberated until the organisms are dead and broken up, and therefore it seems to me the fact that they are dead would be more in favor of absorption of the toxin of the colon group. That is my personal opinion. You cannot get away from the idea that there is absorption of bacterial products, especially the endotoxin, and particularly since the use of acidophilus milk does help to clear up this condition by reducing the number of grave negative organisms.

In regard to acidophilus milk—it is very difficult to make it, especially if you have not clean milk, and the chances are that most of us do not have clean milk; it has manure in it, and manure has spore bearing organisms. If you use whole milk you will have trouble right away. You can pasteurize it. That kills the colon bacillus, but not the spore-bearers. If you put this milk in the incubator the cream rises and makes an anaerobic culture. The spore-bearers, which are also gas-producers grow well and in 24 hours will blow the milk all to pieces. We have in Vicksburg a man who tried to produce acidophilus milk. He had great trouble. We worked with him and gave him pure cultures, but he finally had to use skimmed milk, and even then he was often not able to keep it from being contaminated. The patients can make it if you will get them pure cultures. Lactose does help, but they have to have such large doses that it is hard to take. We have found by making candy out of the lactose they can take it better. Also the use of a common thermos bottle is an excellent way to incubate these cultures.

Dr. J. S. Ullman (Natchez): Doctor McLester's paper is very interesting and there is very little to add, except that in my opinion something more might be said as to the importance of diet and of drinking water. Possibly the Doctor was prevented on account of lack of time from mentioning this. In my experience a large majority of people who are suffering from constipation, that is, where there is no organic trouble or any trouble of innervation—where it is what you might call a habit condition—it is my experience that these people do not know how to eat properly. Take for instance, the average traveling man who lives day after day and three times a day on steak and potatoes and bread and butter. This is a very concentrated diet, but after he once acquires the habit of steak and potatoes it is hard to get him to take any other food. Even though people have a more varied diet, nine out of ten when they sit down to the table will eat the concentrated foods first, even if all the vegetables are served when the meat and bread are served—they satisfy their hunger and the quantity of the green and leafy vegetables necessary to produce bulk in the lower intestines is not taken.

For several years past I have used this plan in handling this condition. I put the patient on what we call a fruit and vegetable diet. I stress this

point that they are *not to use this diet for more than three days*, because it will bring on trouble if they stick to it. But they are not allowed to have any form of flesh, eggs or cheese; in other words, the proteids are cut out, and as far as possible the carbo-hydrates are cut out. We make them live that way for three days, without bread or anything else made from flour, if possible, not that we have so much objection to the carbo-hydrates in themselves, but we find this diet makes an impression on the patient's mind in a way that nothing else will. By the time the three days are up, and usually before, the patient is back at your office asking for relief from the vegetables and fruits. Then you can use your judgment as to whether you cut the time short or not. That has had the effect of stressing to that patient the value of this kind of food. Very few patients need any laxative or purgative when once this lesson is learned.

Dr. J. M. Buchanan (Meridian): I want to say a few words in regard to constipation from the neurological standpoint. Just what produces that nervous condition I am not going to say. Doctor McLester, with all of his learning, did not even know whether it was from absorption of the poison or from pressure. But we do know that we have what is ordinarily known as auto-intoxication which produces very serious nervous troubles at times. We know that we have a nervous condition that we believe is due to the absorption of some of the toxines, and in fact, there is evidence of this toxic poisoning and its effect on the brain and central nervous system. On the other hand, we sometimes have a very severe headache, a splitting headache, and, if you evacuate the bowel, the headache is quickly relieved. If the trouble had been from absorption of a poison, the evacuation of the bowels could not relieve that so promptly, therefore, I think it is probably due to pressure—to a reflex condition. There is a mass in the bowels that produces pressure on a nerve, and there is a reflex condition that affects the central nervous system, and produces a severe headache which is removed immediately after elimination.

We also know that in epileptics as long as we keep the bowels well opened they are not so liable to have these attacks. There is a variation in regard to diet for epileptics—some say they should eat vegetable foods and very little meat—things that do not tend to constipate them. On the other hand, I read not long ago where some doctor gave his diet, and he was giving the very things that had been discarded by others. He gave these patients meat and a liberal diet, excepting that he would not let them have peanuts and popcorn or anything that would tend to irritate the bowel. So it is a matter largely of opinion, I think, in regard to diet. In fact, I have not much faith in diets since Stefannson lived three years in the northern regions on seal blubber. It may be necessary to have some bulky substance in the intestines in order to create evacuation, but somehow they did not require it up there.

There is no question that in nervous and mental conditions the first thing we should do is to open the bowels and thoroughly eliminate as quickly as possible. I have seen cases of insanity clear up almost in a day after the bowels have been thoroughly evacuated. Just what effect that constipation had had on these patients I could not tell. Of course these people did not know how to take care of themselves. Nearly all of them came with constipation and showing evidences of toxic trouble and very often the condition was relieved as soon as the bowels were thoroughly opened.

It is not necessary to go over the matter of diet and habit, as Doctor McLester has already discussed that thoroughly, and I agree with him in regard to it, excepting that I have never been able to get around Stefannson's experience.

Dr. H. M. Folkes (Biloxi): I regard this as one of the most important papers that I have heard before the Medical Association, and it was presented in Doctor McLester's usual scholarly and scientific manner. From my own experience extending over 32 years, I believe one of the most important factors in the treatment of constipation is the question of regularity of habit, and in my opinion the best way to treat constipation is to prevent it by training children properly. So far as diet and medicine and water are concerned, it depends entirely upon the individual's disposition and habit. The truth is that constipation is one of the most frequent causes of bringing people to the doctor's office, and it is a thing to which the average physician pays too little attention. I will not discuss the scientific phase of it, because I do not think anybody knows anything about it scientifically. From a practical point, I think we are largely to blame in failing to give these patients all the attention and time they deserve, studying each case from its own particular angle, because each of these cases is a law unto himself. These points have been brought out, but I wish to drive home the fact that constipation is an extremely important condition in the doctor's every day practice.

Dr. W. A. Dearman (Long Beach): This is a very interesting and timely paper on the subject of the close relationship that exists between so-called auto-intoxication and constipation, and there is a close relationship. Doctor Folkes says we do not train our children as to regularity of bowel movement, but though some of them are well trained, it is the adult constipation that we have to deal with principally.

In regard to constipation in women, I think women are more constipated than men, because of lack of regularity of habit. I have never seen a case of constipation in an adult where it could not be traced back to irregularity of bowel movement, you would not find that the man ate his breakfast in a hurry, grabbed his lunch basket and ran to catch a car, and to this time you could trace back his constipation.

As far as auto-intoxication is concerned, I still believe, in spite of the lack of scientific evidence, that may be brought forth, that there is unquestionably a disturbed condition in the small intestine, that there is a disturbed condition of protein decomposition. I believe that the small intestine can become foul, that all kinds of poisons are being absorbed, postcervical headaches occur, the patient has nausea and vomiting, he is depressed in spirits, his efficiency is reduced in many ways and he is a sick man. He has low blood pressure and every cell in his body is below par; therefore a purge will relieve him and he will feel better, but still he puts in more proteins, an intoxication takes place, and finally he has a high temperature and then evacuation probably will not relieve him.

I think every case of constipation should be treated by dietetic measures and also by inducing regularly of habit. Acidophilus milk plays its part, diet surely plays a very important part, as well as regularity. I believe the proper explanation and persistence in carrying out these fundamental principles will overcome constipation and in time to come will restore the patient.

Dr. James S. McLester (closing): I did not wish to create the impression that poisons are not absorbed from the intestinal tract. I merely wanted to remind you that we have never been able through animal experiment to identify any such poison as the cause of definite disease. The thing which I wanted most to emphasize is the role played by actual bacterial invasion through the intestinal wall and the reflex influence of an over loaded intestine.

THE RELATION OF THE SURGEON TO THE FAMILY PHYSICIAN.*

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Relativity—nearly all things in nature are more or less relative, and interdependence is one of the most usual relations. Your experience and observation will teach or has taught you that absolute independence is to a large degree impossible for it matters not what position one may occupy or what one's possessions, there is a dependence which is inescapable.

There recently came to the attention of the reader, a rich family, the members of which were ill with influenza; the nurses in town were all busy—there was not one to prepare food and give attention to those people but the cook, and when the cook went down they were left with no one to look after them, and their money, for twelve to eighteen hours availed them little.

There is probably no human relations so interdependent as the surgeon and family physician, and the object of this missive has an educational rather than a critical mission. Ignorance is the great bugbear and hinderer of effort and in many instances handicaps the proper solution of problems, and it is doubtful if there are any more difficult problems to unravel than those of diseases affecting the complex human economy, and the more intimate ones knowledge of the host the more readily can the invader be detected; therefore the family physician, if he be an observant person, will essentially be in a better position than anyone else properly to interpret symptoms in a person whom he has observed over a period of years than the one who has contact for the first time.

The family physician is usually acquainted with the idiosyncracies and peculiarities of these people, which acquaintance is only gained by long observation. Anaphylaxis to certain drugs is one point worth knowing relative to anyone. The surgeon who may be ever so careful in obtaining a history, may miss some important detail which would be of considerable importance if known, and which is often found out too late to be of the same value as if known earlier in the case; therefore a letter from or an interview with the family physician by the surgeon relative to a referred case could largely aid the surgeon in the best man-

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agement of the patient—a goal to which the patient is entitled and to which we all aim. The patient's welfare should be first, last and always uppermost in the mind of the family physician and the surgeon.

The family physician when he refers his patient to the surgeon loses the good will and confidence of that particular case and possibly the entire family and connections, due to some inadvertent and possibly unintentional remarks reflecting on his ability or alertness in handling the case. A surgeon should be very careful of his speech in the presence of a layman relative to a case referred by the family physician for often a wrong interpretation is placed on his remarks and great harm results. If he should have any criticism to make it should be made by letter or in person to the family physician himself and vice versa when the patient returns to the family physician, if all is not well, the matter should be taken up with the surgeon, in person or by letter and the proper adjustment made. It is the opinion of the writer that the increasing anti-medical and surgical cults could, to some extent, be traced to this tendency to unfair criticism of physician by surgeon and surgeon by physician to laymen which falls on ignorant but willing ears.

In the matter of diagnosis of a referred case we will grant the value of the family physicians' knowledge of the person and with a knowledge of symptomatology he should be in a position to make an approximately correct estimation of what is wrong, but often in remote places where the aid of the laboratory is not available, he may, and possibly does, err in his or her estimation, but that is unfortunately a situation that the surgeon also meets, with all possible apparatus and aids at his disposal. Now, it would seem that if the surgeon would invite the physician who referred the case, to witness the operation, should one be performed, so that he could see why he referred the case and its pathology, or in the event of his inability to attend the operation, that the surgeon should write him in detail the pathology found, what was done and the expected results; such procedure would be of considerable educational benefit.

In this day of economical organization co-operation is essential to success, and fair co-operation between the surgeon and the family physician with a mutual consideration of the difficulties which each encounter, would no doubt, redound to the benefit of both and go a long way towards increasing the respect and rewards to which they are entitled, as individuals, and which also aid in maintaining the high position which organized medcine should hold in public opinion. Any unfair criticism on the part of either party, in the presence of the laymen would indicate ignorance, lack of consideration and would be little short of criminal, for its effect in destroying the respect of the greatest of all professions.

The family physician is as important as the surgeon, the surgeon is as important as the family physician. Both are extremely important to the welfare of humanity. Permit the writer to implore you not to break down that halo of confidence and goodwill that surround the family physician or the surgeon, unless for special reason, by some remark or suggestion made, in the presence of the patient, some relative or friend, for it may mean a complete change of attitude toward the entire profession. Far be it from the writer to condone or protect the ignorant, grossly careless or criminal surgeon or physician.

DISCUSSION.

Dr. J. E. Knighton (Shreveport): I think this is a very timely paper that Dr. Kemp has brought to our attention. Certainly we must not lose sight of the fact that we as physicians and surgeons must co-operate with each other in our dealings with our patients. First of all, we must be doctors, we must be physicians, whether we are surgeons or specialists along any other line, we must first be physicians and to be physicians in the highest sense of the word we must first be gentlemen. If we maintain the proper relationship between ourselves, certainly we will never lost sight of that fact.

I do not think there is any special reason for prolonging discussion along this line, although I do think it is proper that from time to time we should consider just such subjects as the Doctor has brought before us. I think frequently misunderstandings occur for the simple reason that the layman, the members of the family, or the patient, misinterpret what has been really said either by the surgeon or by the general practitioner—the family physician. Frequently that occurs where there are several physicians in consultation in connection with one case. For that reason I think that instruction should be given to the family, any reports with reference to the patient's condition, should always be put up to one man who assumes the responsibility of the patient. Frequently two doctors will make reports on a patient meaning exactly the same thing, but expressed in somewhat different language, and the layman interprets it as being two different things entirely and gets the wrong idea. For that reason the closer the co-operation that exists between the physician and the surgeon, the better it is for the patient, for the family, and for all concerned.

PRIMARY SARCOMA OF THE INTESTINES.*

FRANK L. LORIA, M. D.,

NEW ORLEANS.

Through the kind courtesy of Dr. Peter Graffagnino, whom I assisted in the operation of the case to be presented, I have been given the opportunity of studying a condition that is a rarity in medical literature. This case has prompted me to study the literature for the purpose of making a statistical report as well as to dwell somewhat upon the etiology and treatment. The report shall be confined to those cases whose origin has been in that portion of the gastro-intestinal tract lying between the pylorus and rectum, and excluding these two latter regions.

REPORT OF CASE.

The case is that of a male child 3 years of age who, after having been ill a week, was brought to the Charity Hospital. Prior to this period of illness the child was said to have been in perfect health. The onset was noticed as a general bad appearance of the child. A few days later he developed a diarrhea, having from five to six stools daily that were more or less scanty, watery, and containing mucus, but no blood. He rapidly grew worse. On the day of admission he developed fever and vomited for the first time. A mass observed in his abdomen was the signal for his immediate conveyance to the hospital. While not weighed in a long time he was thought to have lost considerably in weight. The past history showed that he had been born of a normal labor at full term; had been artificially fed; and that he began walking at nine months. The present was the child's first illness. Three months previously he had fallen and struck the left side of his abdomen against the handle of a wheel-borrow; but this did not seem to give him any trouble. The family history was negative for the usual chronic diseases.

Physical examination showed a fairly well developed and nourished male child that appeared acutely ill, toxic, and anemic. Nothing of any significance was found anywhere except in his abdomen. The left half of this region presented a rather large and firm mass, about the size of a cocoanut, that appeared to lie free and was somewhat movable. It filled the entire left side. There was but little pain and only a slight amount of rigidity.

The temperature on admission was 103.4 F., pulse 116, and respiration 24. A specimen of urine could not be obtained. The blood showed a hyperleucocytosis of 35,000 with a neutrophilic percentage of 76.

Under ether anesthesia a left rectus incision showed the presence of pus in the peritoneal cavity. The mass filled the entire left side of the abdomen. From its position and appearance this mass was recognized to be the descending colon. It was bound down quite firmly to the posterior abdominal wall, and gave the impression of being very friable. The remainder of the intestines were examined and another mass, similar in nature, was found to involve the ileum about two feet (60 cm.) from the ileo-caecal junction. The lymph nodes in the mesentery of this latter mass were fairly well enlarged. This ileal mass was about eight inches (14 cm.) in length and was quite easily distinguishable by the thickness and firmness of the intestinal wall.

General peritonitis had set in. A clinical diagnosis of malignancy was made, and as the child was doing badly, the abdomen was closed without attempting further exploration. The patient died nine hours later.

A partial autopsy showed the liver, spleen, kidneys, pancreas, etc., of about normal size and consistency. The pelvic organs were negative. The small intestinal mass was re-examined and the operative findings confirmed. The entire cavity was filled with a flaky and purulent material.

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*Read before the Orleans Parish Medical Society, June 22nd, 1925.

Beginning adhesions were fairly numerous. The appendix appeared normal. The descending colon was removed between ligatures; and the mesenteric infiltration was found to be so extensive that the whole posterior surface—on being pulled away—appeared very broad and ragged—the lymph nodes being very much enlarged.

The gross specimen was a mass about 14 cm. in length and about 6 cm. in width and thickness. The posterior—mesenteric—surface was irregular and more or less nodular. The peritoneal surface was smooth with an almost entire absence of the longitudinal bands, which in reality had been so stretched that they could not be distinguished from the peritoneum. The mass was largest at the splenic end; but it tapered into the normal intestine above and below. Cross sections showed the intestinal lumen as a small slit-like opening. The thickness of the wall ranged from 1 to 1.5 cm. In consistency the mass was very friable. A longitudinal incision showed the mucus membrane to be fairly well intact except for two very large ulcers—one slightly larger than a twenty-five cents piece—and oval in shape; and the other about the size of a five cents piece. These were both near the splenic end.

Microscopically, the entire intestinal wall, from mucosa to serosa, was found infiltrated with a type of small lymphoid cells. These cells were so numerous that only a thin reticulum of connective tissue could be made out as the supporting element. The submucosa, very much thickened, was practically one mass of small round cells among which were found numerous small and large congested blood vessels. An occasional endothelial cell was seen. The mucosa and muscularis mucosa were found to be in fairly good condition. However, ulceration of the former was noted in some places.

The muscularis was entirely invaded and its fibers of muscle separated and broken up by the infiltrating growth. The subserosa—as the submucosa—was thickened and infiltrated. The serosa was intact and perhaps somewhat thinner than usual. Large and small blood vessels were in abundance throughout the section.

The tumor cells were very closely packed together. Occasionally, what seemed to be lymph follicles were seen; and it appeared that from these as centers infiltrating extensions were projected. The cell itself was of the lymph type. It contained a large vesicular nucleus and a relatively small amount of cytoplasm. In size it varied from about 3 to 7 microns. While mitotic figures were unmistakably present they were not very numerous. A diagnosis of intestinal lymphosarcoma was made.

In addition to the above described case this paper is based upon 115 other cases. Until the year 1900, when Libman(1) made a thorough study and report of this condition in the small intestines, the subject was unsystematically and incompletely covered in the literature. In 1901 Jopson and White(2) reported all the cases whose origin was in the large intestines; so that, between these latter authors and Libman the subject was pretty well covered. Corner and Fairbanks(3) in 1904, collected all cases that involved any portion of the gastro-intestinal tract. This is the most comprehensive statistical report of this subject on record. These authors collected 96 cases of sarcoma involving the intestines proper; and these are divided according to the segment of the bowels attacked and the type found. Since then isolated cases have been reported from time to time but no attempt has been made at a collection and classification.

The rarity of primary sarcoma of the intestines is well illustrated by the fact that from 1859 to 1875 no cases of intestinal sarcoma were observed in the Berlin Pathological Institute.(1)

Smoler(2) reported 13 cases of primary sarcoma of the small intestines found in 13,036 autopsies between the years 1883 and 1898. In spite of this it appears that the condition is perhaps a little more frequent than these reports would lead us to believe. From 1914 to 1923 inclusive the Charity Hospital records show that 7 cases were diagnosed. Foreman(4) says that sarcoma of the intestinal tract is more frequent than is usually thought.

As compared to primary carcinoma of the intestines sarcoma certainly occurs much less frequently. The seat of preference between the two conditions appears to be reversed. While carcinoma has a tendency to occur more often in the large bowel sarcoma seems to prefer the small intestines. Libman(1) collected 59 cases of sarcoma of the small intestines whilst Jopson and White(2) could only collect 22 cases

involving the large intestines; and, the greatest number of these occurred in the ileo-caecal region—the line of division between the large and small intestines. From this alone it would appear that the proportion is practically 3 to 1. In the group of 116 cases 78 occurred in the small and 36 in the large bowel. In two instances the exact location was not obtainable. Nothnagel(1) found only 3 cases of sarcoma of the bowel in 274 cases of sarcomata from 1882 to 1893. In the same period of 2125 cancer cases—243 were of the bowel. Of 102 cases of sarcomata Muller(2) found but one in the intestines; and of 521 cancer cases 41 were of the intestines. From 1914 to 1923 inclusive the Charity Hospital records show 44 cases of intestinal carcinoma occurring among 1817 carcinomata cases (excluding gynecological carcinomata). During this same time of 431 cases of sarcomata 7 occurred in the intestines. A survey of these figures shows that if everything were equal carcinoma would appear to occur six times more frequently than sarcoma.

The number of cases involving the various groups are as follows:

Duodenum	9	cases
Jejunum	24	"
Ileum	33	"
Ileo-caecal regions	21	"
Ascending colon	4	"
Transverse colon	1	"
Descending colon	5	"
Sigmoid colon	2	"
Small intestines (location not specified)	11	"
Large intestines (location not specified)	2	"
Small and large intestines	1	"
Location not specified	2	"

From this it would appear that the ileum, jejunum, and ileo-caecal regions are involved most frequently; and in the order named. The transverse colon shows, apparently, the least susceptibility. A few cases where practically the entire intestines were involved have been reported. In one instance the entire stomach, small, and large bowels were involved.(5)

Etiology.

Sarcoma of the intestines has been found from the new born (Stein) to the age of 70 years. As sarcoma elsewhere in the body, the condition is usually found in the earlier years of life. The greatest number of cases have occurred between the 30th and 40th years; the next greatest between 20 and 30 years; and this is followed by the 0 to 10 years group. Of the 116 cases gathered the age was given in 102. A grouping of these show the following:

0 to 10 years	16	cases
10 to 20 years	9	"
20 to 30 years	24	"
30 to 40 years	29	"
40 to 50 years	12	"
50 to 70 years	10	"

As in the case of cancer the etiology of intestinal sarcoma is unknown. In carcinoma of the bowel—most of the cases developing in the large intestines—the responsibility is usually placed on the fecal impactions and stases, which brings us to the chronic irritation theory. However, as most cases of sarcoma develope in the small intestines this theory has to be placed further down the list of probable causes. In several instances the disease appears to be associated with previous trauma.(1) Various chronic diseases of the intestines—as syphilis, tuberculosis, etc.—have at one time or another been blamed. In 1893 Flexnor reported the finding of small oval protozoal bodies in the two cases which he reported. The recent work of Bunting and Huston(7) shows that of the 3,300,000,000 lymphocytes that enter the blood stream in 24 hours, most of them are thrown out into the lumen of the intestines. DeNoyelles(8) and Kelley(9) believe this may go far toward an explanation for the incipiency of this disease. It certainly seems quite possible that among such a great number of cells—in a fertile field—a few might be activated to an abnormal proliferative process, which ends in the beginning of a sarcomatous new growth. In most of the cases collected no attempt was made to give the etiology.

The case herewith presented shows a history of trauma in the region of what appeared to be the primary growth some three months previous to the patient's death. This may or may not have had something to do with the development of the disease. Nothing else in the history or physical findings gives any idea as to any other cause in this case.

In Libman's 59 cases 35 occurred in males and 14 in females. Jopson and White's cases show 12 in males and 10 in females. Of the 116 cases collected 72 occurred in males and 34 in females. From these figures it appears that the male is about twice as frequently attacked as the female. The figures of Corner and Fairbank tally very closely, as they report 59 in males and 28 in females.

Pathology.

Practically every type of sarcoma has been found in the intestines. Every layer of the intestinal wall has at one time or another been the starting ground of a new sarcomatous—growth. The serosa has been the place of origin in several instances. The subserosa, muscularis, muscularis mucosa, and submucosa have all had their share. It appears that the closer to the intestinal lumen the greater the chances for affection. The submucosa has been the seat of origin in the greatest number of cases. This is substantiated by the fact that approximately 78% of the collected cases were either round-celled or lymphosarcomata; and it is the general belief that these types have their incipiency in the submucosa. As they grow in this layer the tendency is to dissect longitudinally along the intestinal wall. Infiltration of the muscularis takes place; the latter layer is paralized; the bowel dilates; and diarrhea is the usual sequence. This is more true if the growth is in the large bowel. In the small intestines, while the same thing usually occurs, intussusception and obstruction not infrequently complicate the pathological picture. The freer mobility of the small intestines seems to be the explanation of this. Ulceration of the mucosa is less frequently seen than in carcinoma. It is most often found in the large than in the small bowels.

The types of growth found in the intestines have been quite numerous. Most important among them are round-celled sarcomata, lymphosarcomata, spindle-celled and mixed-celled sarcomata. Those which occur less frequently are myosarcomata, melano and adenosarcomata.

It is very difficult to differentiate between round-celled and lymphosarcomata in this region. The former is probably the most malignant in the intestines as it seems to be complicated by more frequent metastases. As a matter of fact the lymphosarcomata grow more by infiltration and metastasize less frequently than any other growth.

Metastasis may occur to any region of the body. The liver seems to be most frequently affected; then the lungs, kidneys, various portions of the intestines, stomach, brain, and lymph nodes. Metastasis(10) is not as frequent as in carcinoma of the bowel.

When the growth involves the large intestines peritonitis has been a very frequent complication. If this is not found at operation it almost invariably developes after the exploration.

Symptoms.

The symptomatology of this disease necessarily varies with the portion of the bowel affected and the type of growth present. Ochsner(11) describes the early symptoms as being indefinite abdominal pain, persistent and unrelieved by rest and starvation, colicky and not particularly well localized, often associated with anemia and cachexia. If the duodenum is the seat of the lesion symptoms of dyspepsia will manifest themselves. Ordinarily these would simulate the symptoms of gastric ulcer or gall-bladder disease. Because of the anatomy in this region obstruction or intussusception would only be a remote possibility.

Unless the growth is into the lumen, no symptoms of obstruction will occur. The X-ray will show practically nothing definite. A tumor in this region—unless quite large—would be difficult to palpate. The cases of duodenal sarcomata reported have all practically been discovered as the result of explorations for suspected ulcer or gall-bladder trouble. If the jejunum or the ileum is involved almost the same symptoms result. However, here there is the added danger of intussusception, and obstruction as the result of this. Tumors of the intestines are a frequent cause of intussusception in adults but rarely in infants and children.(11) A tumor mass in these regions would also be felt earlier, and would—as a rule—be found quite movable. In the large intestines it appears that obstipation is more frequent when infants and children are concerned. This, too, may come on as the result of an intussusception. Usually the same symptoms are otherwise found for this portion as in the others, except that intussusception practically never occurs in adults. However, the added danger is general peritonitis. Pain is only occasionally present.

In the light of our present knowledge it is practically impossible to distinguish, clinically, between carcinoma and sarcoma of the bowels. Stenosis is rare in sarcoma while it is frequent in carcinoma. However, this is not necessarily always true. DeNoyelles reported two cases in one of which there was almost complete obstruction. Bloody stools are only rarely seen in sarcoma, whilst they are almost always present in carcinoma. The younger the individual, too, the greater the chances in favor of sarcoma.

In addition to the above symptoms the general picture of the individual will tell us that a malignant growth should be suspected. Rapid loss in weight and strength with an otherwise unexplained anemia adds strength to a diagnosis of malignancy.

Diagnosis.

Sarcoma of the intestines must be differentiated from any tumor that may be found in the abdomen. The location of the tumor and the various other features all determine the possible diseases from which an intestinal sarcomatous growth must be differentiated. Needless to say, an exploratory laporotomy—as in many another abdominal disease—is the only means by which a diagnosis can be cleared up. Tumors involving the pancreas, spleen, kidneys, mesenteric lymph nodes, and the mesentery itself may all more or less simulate the disease. Ordinarily a malignant tumor can pretty well be diagnosed or ruled out by an intelligent history as well as by the laboratory and physical findings. Cysts of the pancreas, mesentery, ovaries, and hydronephrotic kidneys are thus more or less ruled out. Occasionally a pedunculated cyst of the liver may very closely simulate sarcoma of the bowels. Because of the tendency to grow longitudinally along the intestinal wall it is very difficult to pick the place of orgin of these tumors.

The X-ray has been found to be of very little or no value in these cases. Loss of muscle tone and consequent dilatation is the usual picture.

Prognosis and Treatment.

As in other malignant diseases the prognosis is always bad. The type of growth found has much to do with the outlook. Ordinarily practically all cases will end fatally. However, encapsulated lymphosarcomata have been removed with a very long time cure.

The treatment of this condition, as in all other malignancies, depends largely upon the time of diagnosis. Several cases have been reported in which resection of the portion of the intestine involved, with its corresponding mesentery has resulted in a long time cure. Most of these have been in cases of lymphosarcoma, many of which have been found fairly well encapsulated. In the 96 cases collected by Corner and Fairbank 31 resections were

performed. Of these twenty survived the operation. Among them three died of metastases within eight weeks; two were alive and well one year later; one was alive and well eight years later; seven were reported as being alive in periods of from three to eight weeks after operation; and, two died after excision of the diseased area. Thus, it appears possible that an early diagnosis in favorable cases may lead to a complete cure.

In addition to resection operations enterostomy may be found of value in some cases: and still in others lateral anastamosis would serve of some benefit. However, it is almost invariably best to perform resection unless the involved area is too extensive. X-ray and radium may be used as in other malignant diseases.

Conclusions.

1. One hundred and sixteen cases of sarcoma involving the intestines have been collected. These have been classified according to the regions attacked and the type found.

2. The disease is probably more frequent than this number would lead us to believe.

3. The disease occurs more frequently in the small intestines—in a proportion of about 3 to 1. Excluding the ileo-caecal region only 12 cases can strictly be said to have involved the large intestines. More cases have been reported in the ileum than in any other division, the jejunum coming next in frequency.

(4) Nothing definite is known about the etiology. Lymphocytes thrown into the intestinal lumen may have much to do with the incipiency of this disease. As sarcoma elsewhere it is found in the earlier years of life.

5. Practically all types of sarcoma have been found as primary in the intestines. About 78% have been round-celled and lymphosarcomata.

6. Metastasis may occur to any region of the body, but more especially to the abdominal viscera.

7. The disease is practically never diagnosed clinically. It must be differentiated from the many other conditions found in the abdomen.

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DISCUSSION.

Dr. Rudolph Matas (New Orleans): Dr. Loria in his excellent presentation of the subject of sarcoma as it affects the intestinal tract has not only contributed a valuable case report to the literature of the subject, but has demonstrated by his analysis of the statistics of the Charity Hospital that this disease is relatively very rare in our local and regional experience. In this conclusion he is in thorough accord with all the pathologists and surgeons who have written on the subject. It is to be regretted that the latest and most comprehensive treatise on *"Neoplasms of the Intestine," in which sarcoma of the bowel tract is considered with great thoroughness by Dr. Martin Staemmler, of the Chemnitz Pathological Institute, should have reached us too late to utilize the rich store of new data which it contains in the preparation of Dr. Loria's paper.

As this subject is one of more than academic interest and presents practical phases of importance to the clinician and operating surgeon, I will endeavor to supplement some of Dr. Loria's observations by quoting from Staemmler's exceptionally large pathologic experience, his materly monograph embracing practically everything of

*"Leutsche Chirurgie," edited by Kuettnor, vol. XLVI, Chap. V, pp. 284-342, to which is appended a bibliography of over 425 references up to 1925.

importance that has been published on the subject. He has been able to collect the reports of three hundred and ninety (390) sarcomata of the intestinal tract, to which he has added ten (10) personal observations from the laboratory of the Chemnitz Pathological Institute; in all four hundred (400) well authenticated cases that are available for study. He concludes from this research that the proportion of sarcomata to carcinomata of the bowel as established at the post-mortem table is about one (1) sarcoma to sixteen (16) carcinomas, while in surgical practice (biopsies), chiefly based on the statistics of German and Austrain surgeons, it is about one (1) sarcoma to one hundred (100) carcinomas.

Carcinoma of the intestines is found in one per cent of all autopsies (ten per cent of all carcinomata occur on the intestinal tract). On the other hand, he found, after the compilation and analysis of a grand total of 54,000 autopsy protocols, chiefly obtained from the combined records of the German and Austrian Hospitals, that sarcoma of the intestines was registered in only thirty-three (33) cases, which establishes a rate of 0.06% as the incidence of these tumors at autopsy. Staemmler in a tabulation of three hundred and ninety-four (394) cases of well authenticated intestinal sarcoma found them distributed as follows:

Duodenum	34
Jejunum	44
Ileum	79
Small intestine	61
Caecum and ileocaecal coil	45
Appendix	12
Colon	16
Sigmoid	4
Rectum	91
"Large gut"	8
Total	394

The relative frequency of the intestinal sarcomata according to histological type, as studied in 152 cases, is stated as follows:

Round-celled	61
Lympho-sarcoma	44
Spindle-celled	19
Myosarcoma	7
Myxosarcoma	4
Fibro-sarcoma	4
Polymorph-celled	4
Alveolar	4
Melanotic	2
Endothelioma	2
Angiosarcoma	1
Total	152

Sarcoma of the bowel may be single or multiple; it may appear as a single projecting well defined tumor, or as a diffuse infiltrating tumor, or as a pedunculated polypoid growth projecting into the intestinal lumen. The diffuse infiltrating form is by far the most frequent. These tumors may attain large size, the size of an adult head (Westermark, Cuneo, Baginsky), but as a rule they are not larger than a hen's egg or a man's fist. These tumors involve the circumference of the bowel, causing great thickening of the intesinal wall with diltation of the lumen. Hence the clinical comparison to an aneurysmal dilation or sac, which is peculiar to these growths and also accounts for the lack of obstructive symptoms.

In regard to age and sex, at one time sarcoma of the intestines was supposed to be a disease of infancy and youth. At present, we know that while this tumor is more common in early and middle age, it may make its appearance at extremes of life: in the new born infant (embryonal sarcoma, Stern) and in a woman seventy-six years old (Rüder). It was also supposed at one time to be more frequent in woman—now it is apparent that it appears with practically equal frequency in both sexes. In connection with the etiology, opinions still differ as to the exciting causes. According to Libman of Mt. Sinai, N. Y., who represents the American School, chrome infections, including syphilis and tuberculosis, play an important part in the causation. According to the German authorities, following the leading Billroth, direct traumatism, bowel injuries from contusions, falls, blows, are the most frequent exciting causes, differing in this was from cancers in the fact that these most often appear at the seat of chronic irritation, at friction points in the intestinal canal (cardia, pylorus, ileo-caecal coil, flextures of colon, rectum anus, etc.).

The most interesting clinical and pathologic-anatomical features of the sarcomata that differentiate them from the carcinomata, is the relative infrequency of intestinal obstruction and hemorrhage. The sarcomata more often advance to multiple metastases, cachexia, and fatal toxemia causing death without obstruction even after the development of large tumors. This is accounted for by the diffusion of the sarcomatous growth in the lymphoid and submucous layers which may cause polypoid formations but more often a diffuse infiltration of the intestinal walls which spreads cylindrically and longitudinally, forming long, tubular, sausage like or elongated, spindle shaped pouches, constricted at each end; in this way the sarcomata do not encroach upon the lumen of the bowel sufficiently to obstruct, but cause dilations that give the affected intestine the appearance of an aneurismal pouch. Another feature which is peculiar and distinctive of the

intestinal sarcomata is the alternating constipation and diarrhea, that becomes more marked as the disease advances. This is accounted for by the accumulation and stagnation of the fecal contents in the dilated pouches which are paralized and are incapable of peristalsis until the acrid, toxic contents of the pouch excite the movements of the bowel above it and force the contents out the gut below, where they appear as fetid diarrheal stools.

There are many points of great interest suggested by Dr. Loria's paper which could be discussed profitably and at great length in the light of the immense histological and pathological research that is brought out in Staemmler's monograph. In conclusion, it is regrettable that owing to the insidious nature of the disease, the absence of early obstructive signs and the frequency of a deceptive diarrhea alternating with constipation, the diagnosis usually is arrived at too late to allow of radical surgical treatment. In this respect the early tendency of carcinoma to obstruct the bowel is of diagnostic and therapeutic advantage. The hope of recovery lies in early exploratory laparotomy, especially when a permanent fusiform or cylindrical dilation of the bowels can be demonstrated radiologically, and a characteristic alternating diarrhea and constipation have set in. In spite of the discouraging frequency of inoperability due to the existence of metastases in the mesentery and viscera, when operation is undertaken there are a sufficient number of well advanced cases in which patients have survived resection three, four and more years, to prove that surgery can cure if only applied early enough, when the condition of the patient, and the early stage of the disease will justify a radical operation. Comfort may also be given and life prolonged by such pallative procedure as short-circuiting the bowel, anastomosis, by entero-enterostomy, ileo-colostomy and ileo-sigmoidostomy, or artificial anus, even when a radical operation is impossible. Deep X-ray therapy and radium have proved unavailing in the treatment of these cases.

Dr. P. Graffagnino, New Orleans: My intention is not to discuss the subject which has been so well covered by Dr. Loria's Paper and Dr. Matas' Discussion, but to express appreciation of the presentation. It is only by such thorough study and the presenting of these unusually rare cases that we enable others to recognize a similar condition when encountered. Prior to operating on the case mentioned by Dr. Loria, I had never heard of one in the Hospital. In all there have been seven.

I thank Dr. Loria for this account.

Dr. Loria (closing): I wish to extend my sincere thanks to this audience for the kind reception of this paper; and to Dr. Matas for his discussion of this subject. While Dr. Matas has presented us with probably the true figures in this condition, I wish only to say that after careful searching through the various index catalogues, I thought I had gotten out most of the cases. Because of the length of this paper, I realize I shall probably have to leave out of the publication the various illustrations which I am about to present. (Slides shown.)

POST-OPERATIVE INFECTIONS OF THE ABDOMINAL WALL.*

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The subject of this paper, "Post-Operative Infections of the Abdominal Wall," is one upon which there is a marked paucity of literature. In a fairly extensive search of the current literature for the past several years I have only been able to find two articles dealing with the subject, and am at a loss to understand why more attention is not paid to its prevention and cure. Judging from our experience in emergency surgery one daily comes into contact with cases in which it is manifestly impossible to prevent some wound contamination regardless of the technique employed. In such conditions as perforations of the viscera, ruptured gall-bladders, ruptured appendices, gangrenous or suppurative appendicitis, and general peritonitis from whatever cause, regardless of the most rigid technique the wound becomes contaminated, and in a considerable proportion of cases this infection leads to necrosis, suppuration or gangrene with sloughing of the wound in the closed part of the incision.

As just said, these emergency cases are relatively common. For instance, from Jan. 1st, 1924, to date, we have seen 238 operative cases of appendicitis, 92 of which had present a pathological condition which necessitated drainage being instituted, and each of which was doubtless infected at the time of dealing with the pathology present. These data represent only a relatively small

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*Read before Mississippi State Medical Association, Biloxi, May 12-14, 1925.

phase of the subject, and I feel safe in asserting that in any large series of cases of the type mentioned there will develop a considerable number of severe wound infections involving the parities extensively, not to mention those causing only localized symptoms.

Before taking up the pathology, symptomatology and treatment I want to cite three of the severer grades of this type of case that have come under my observation during the past year:

Case 1. W. H., male, white, 28 years of age, admitted Nov. 2, 1923; physically perfect; height 5 ft. 8 inches, weight 165 pounds. Has had diseases of childhood but no serious illness. Sick 36 hours; taken with severe pains around umbillicus. When first examined had a well defined localized appendicitis with white blood count of 19,000, 87% polynuclears.

Immediate operation was done, the approach being through a right rectus incision, the wound edges being protected by moist gauze sponges, the appendix which was gangrenous being removed, the stump was cauterized and dropped back, a large cigarette drain being introduced. Having in view a possibility of post-operative infection, gloves were changed, all instruments used discarded, and fresh linen arranged. The peritoneum was sutured with No. 2 catgut, the wound being then washed out with ether, figure 8 silkworm gut stitches were used for the skin, fascia and muscles, being reinforced in the fascial layer with interrupted No. 2 catgut. It will be noted that the interrupted sutures were used to facilitate further drainage of the wound, should it become necessary. Convalescence was devoid of incident until the morning of the sixth day, when temperature was 100° F., but wound had a healthy appearance; at 6 P. M. temperature was 101° F., pulse 110, and good volume. Two stitches were removed from the wound and a wet antiseptic dressing applied. Depth of wound black and necrotic. At 6 A. M. was called and found patient with temperature 103.4, barely perceptible, pulse of 160, and in a state of profound collapse. All stitches were removed, the skin wound laid open, and under a local anesthetic a crucial incision about 8" long made outward and posteriorly as far as the infection extended, which while not discernible from the surface could easily be followed by the greenish discoloration in the plane between the fat and the fascia. These flaps were dissected externally as far as the discoloration extended and the wound kept open with a gauze pack. A crib was placed over the patient with a 32 candle power electric light kept burning under it. No dressing was applied to the wound. Culture showed a pure staphylococcus infection. Within 12 hours temperature was 100, pulse 100, and further convalescence uncomplicated.

Case No. 2. E. J. W. Admitted Jan. 27th, 1924. White, male, age 62. Admitted because of appendicitis of one week's duration. Symptoms however were mild and subsiding. On account of a history of a long standing diabetees, it was decided to attempt to improve his condition before resorting to surgical measures. Blood sugar at this time was 263 mg. per 100 c.c. of blood. On the morning of Feb. 5th there was a local flare up with a blood count of 15,000, with 87% polynuclears. Under spinal anesthesia a small periappendicular abscess was evacuated and drained. Patient stood the operation well, but 48 hours later began to suffer from an intractable hiccough. On the fourth day because of this and other toxemic symptoms two stitches were removed and the deeper tissues found to be gangrenous, the process extending upward and inward for a short distance between the fat and the fascia, this was opened freely. However the gangrenous process practically continued to spread in the plane designated until the whole abdominal wall was involved. The patient dying on the 14th day after operation. Of course one realizes that the resistance in this type of case was very much lowered, but the pathological process from a clinical standpoint was similar in its pathology and method of extension to other cases of the same character with greater physical resistance.

Case No. 3. D. K. Admitted March 7th, 1924. White, male. Age 57. Single.

Sick one week with pain over gall-bladder and rigors. Has always been healthy. A diagnosis of acute cholecystitis was made, and operation performed the morning of admission, gall-bladder found acutely inflamed and deeply placed pus and stones were evacuted, one rubber drain placed in gall-bladder and one in Morrison's pouch. Wound closed in layers. Patient stood the operation well. However, for the first four days there were toxemic symptoms of a mild character, a little hiccough, drowsiness, flushed cheeks and moist skin, most of which were attributed to the original condition. On account of patient complaining of pain to the outer side of wound on fourth day two stitches were removed and the wound explored. The deeper tissues next to the fascia were greenish black and gangrenous. All superficial stiches were removed, the skin wound being opened up freely, and under a local anesthetic the diseased process followed outward and backward for a distance of 6 to 8 inches. The flaps were elevated above and below as far as the greenish discoloration extended. The wound was packed

with gauze, no dressing applied, adhesive plaster applied across abdomen to support wound, crib with light placed over patient. Later the deeper tissues became gangernous and the wound opened to its full depth. Ultimately the patient made a good recovery except for a large ventral hernia which was later repaired.

The three cases above detailed were selected because of their being outstanding examples of this condition. Repeatedly have we opened a much less aggravated condition following particularly operation upon gangrenous gall-bladders and appendices, in which the deeper tissues had become necrotic necessitating opening of the wound.

As to the type of infection present, to my surprise it has always been almost a pure staphylococcus. Personally I have always believed and still do, although laboratory findings do not bear me out, that the infection is anacrobic in character which influences materially the measures adapted for its control.

The pathology present from the mildest to the most severe type has always shown some degree of tissue necrosis and gangrene. In the mild cases, local in character, in the severe cases spreading and fulminating in type. I wish to call particular attention to the observation that in all cases for several days the superficial tissues present a healthy appearance, and that in all cases not strictly localized the diseased area of spreading infection lay in the plane between the subcutaneous fat and the fascia of the abdominal muscles. This latter observation is of material importance in the treatment.

The symptoms at the onset are more constitutional than local, being of a toxemic character and occurring on the heels of an abdominal catastrophe, one is very liable to ascribe them to the original disease rather than to a secondary complication in the wound. The patient may be flushed, with a slight icteroid hue, the skin moist and he exhibit a decided mental hebtude. Hiccough is ordinarily a very early and prominent symptom, and in our own experience when present is more apt to be caused by a severe toxemia than by any local irritation of the diaphragm or stomach. The blood count is usually high but the appearance of the wound superficially is misleading. With the above enumerated symptoms following an operation upon an acute abdomen we never feel any hesitancy about exploring the wound.

It has been our observation that many of the symptoms that we are prone to ascribe to peritonitis following an operation are due so frequently to an entirely separate and distinct entity, that I believe that more people die postoperatively from a fulminating wound infection than from a preexisting peritonitis. The peritoneum is far more resistant and able to take care of itself than are the soft tissues of the abdominal wall.

The treatment should be mainly prophylactic. Once the condition develops the primal indications are to open the wound freely and to follow up with free incisions all areas to which the infection has spread. Believing, as I do, that the infection is usually anarobic in character we discard all dressing, leaving the wound exposed to the air and the rays of an electric light.

In addition, whatever supportive measures such as glucose intravenously, blood transfusions, etc., as are indicated, are employed.

For years we have been searching for some means by which these infections could be prevented, and with indifferent success. We have used the stab drain at another point, have irrigated the wound with ether and other antiseptics, have employed drainage at both angles, have adopted methods of suturing that would facilitate drainage in case of the development of infection, and far more frequently than otherwise when dealing with potentially infected wounds we would have to open the wound allowing it to heal by granulation. We believe now that prophylactically we can prevent the complications described by treating all wounds following

operations for septic conditions as potentially infected.

Keeping in mind the fact that the infections starts on the fascial layer and always spreads along the plane between the fascia and the subcutaneous fat, we have adopted the following as a routine technique in the closure of all potentially infected wounds of the abdominal wall. Any drains are either brought out at the most dependent angle or through a separate stab wound, the peritoneum closed with usual running stitch or catgut, figure 8 silk worm guts introduced through skin, fascia, muscle and peritoneum, reinforced in the fascial layer by interrupted catgut. The skin and fat wound are left open and a gauze pack slightly longer than the wound and 1" or 1½" thick saturated with a 1% mercurochrome solution is laid on the fascia and between the skin margins, the silk worm gut being tied in slip knots over the gauze. After 96 hours they are untied, the gauze removed and usually a healthy granulating surface which walls off our danger zone is exposed. If such is the case the stitches are retied. If the wound should not appear perfectly healthy the skin wound is left open without dressings and exposed to the air and light. When we first devised this procedure we employed plain sterile gauze but believe that the mercurochrome gives better results.

The rationale of the above depends upon the antiseptic action of the mercurochrome and the fact that the plans along which the infection spreads is not under tension and is freely drained until nature has thrown up a wall of granulation tissue.

The procedure is so simple and the results so gratifying that if any one of you had a similar experience to myself in the treatment of these potentially infected wounds, it will repay you to give this method a trial.

To recapitulate, provide for necessary drainage, close the wound with interrupted suture through the outer fascial layer, leave the fat and skin unsutured, pack the open wound with a 17, mercurochrome gauze over which tie your silk worm gut, do away with pus poultices, and have the wound exposed to the air and light.

DISCUSSION.

Dr. R. L. Turner (Meridian): I think Doctor Gamble has presented a very excellent paper, and anything that can be done to prevent the bad effects of post-operative conditions will certainly be a great benefit to us in the way of shortening the length of stay in the hospital for the patient, as well as the distressing scar tissue resulting from abscess. His idea is somewhat new and progressive and I cannot add much except to endorse him in his idea of free drainage. In the first case reported he used a cigarette drain and had a bad infection. I think he would have had less infection with two or three large rubber tissue drains. I have not used the methods he suggested, but I shall certainly try them. I have not tried anything except free drainage, but I think where we close the incision line too tightly we are more apt to have trouble—intra-abdominal infection or extra-peritoneal infection. Of course we dread post-operative abscess and infection of the abdominal wall. I think the Doctor has given us a very excellent paper which I know will benefit all of us.

Dr. E. C. Palker (Gulfport): Doctor Gamble has brought very many forcible truths home to every man who does abdominal sugery. In all these drainage cases we dread infections that travel along the fascia. For several years I have adopted something that I got from Doctor Moorehead of New York. For traumatic surgery he used a common pipe cleaner as a drain. Following that up in infected cases, I have my pipe cleaner and lay lt right on top of the fascia, between the fascia and the fat, and I usually cut so that they meet in the middle and have the ends sticking out of each end of the wound. Let us stay there for 36 hours and you will find it will drain out the infection in most cases. I would like some you to try it. For me, it is an ideal small drain.

Dr. J. S. Ullman (Natchez): This paper is a most practical one and should interest every man who is doing any abdominal surgery. One point I would like to mention is: I think we are inclined to lay too much stress on the use of ether as an antiseptic. So far as I know the use of ether was first introduced in surgery for cleansing the wound by French surgeons during the great war, and I think their idea in using it was for its hemostatic effect rather than as an antiseptic. I think it would be of great interest to have some

bacteriological experiments carried out in which a quantity of ether small enough to evaporate in the same length of time as that quantity poured into a wound usually evaporates, should be put on to a culture plate and see what effect it has on the bacteria. If we are going to use an antiseptic in cleansing the wound margin at the time of operation, I think we should use something more efficient than ether. In our own experience most of us use mercurochrome with more satisfactory results.

As to the anaerobic infection, of course it is possible to have anaerobes introduced into the tissues, but I think Dr. Gamble's method of laying the wound widely open and permitting free drainage would naturally clear up any infection in a short time. His packing of mercurochrome placed in the wound afterward is a most excellent idea and I think all of us would do well to try it in these bady infected cases.

Dr. A. E. Gordin (Jackson): The seriousness of an infected abdomen was forcibly brought to my own knowledge about two months ago. A man, a simple gall-bladder case, developed a temperature of 105 within a few hours after he was operated. In consultation with the best men in the hospital we could not find anything to account for it. His lungs were normal, his kidneys were normal, etc. There was no pain in the wound at all. About two or three days elapsed in which his temperature kept up and yet he had no pain or symptoms that would suggest an infection in the wound itself. About a day later he developed a reddening in the lumbar regions which was the first signs of any local infections. We opened the lumbar region and drained out quite a bit of pus which seemed to have come from the lower part of the wound. This incision and drainage and subsequent ones did not stop the infection and the patient developed a severe cellulitis which extended as high as the shoulder and as low as his knee and he finally died from this infection. If we had drained this case at first probably there would have been no trouble.

As to the value of mercurochrome, of which we have heard so much talk recently, my experience has been limited, but it has been very disappointing, especially by the intravenous method. For instance, mercurochrome intravenously is supposed to be the treatment for furnuculosis, but in one case after using mercurochrome for four days, a woman developed a severe furunculosis over the abdomen.

The glucose drip over several days certainly supports these severe cases very well.

Dr. C. Jeff Miller (New Orleans): There are one or two points to which I wish to take exception in Dr. Gamble's excellent paper. I believe that some of his infections may be due to the complete closure of the wound. I am, of course, not questioning his technique, but I think we are inclined to close too many incisions in the presence of an acute infection. I formerly had experiences similar to his, but recently I have been following the suggestions advanced in a series of cases reported from the New York Hospital surgical services where they have been handling gangrenous appendices by making a McBirney incision and leaving the wound open. In these cases the rest of the abdomen is of course not explored and we endeavor to do our work within as small an area as possible, so that we shall not disturb nature's effort to wall off the infection. The appendix is easily removed through the small incision, and then two drains, a short and a long, are inserted into the wound. The short one is removed within 24 hours and the long one may be removed within 48 hours and its place taken by another short one. It has been the experience of the New York Hospital surgeons that their percentage of infected wounds has been greatly reduced by this method and that fewer herniae have followed.

I also differ from Dr. Gamble on the question of removing all the sutures from the wound as soon as evidence of infection develops. In the ordinary mid-line incision for pelvic work I have in recent years followed the technique of the late Dr. Watkins of Chicago. A small opening is made in the line of the incision to allow of the discharge of pus, then hot compresses are applied to the wound, and the stitches are only removed when indicated. Most of the cases so handled will heal without the secondary operation which was necessary when the older method was employed.

Dr. H. A. Gamble (closing): There is little more to say with reference to treatment of wounds, but there are certain points of the discussion to bring out. The first is the question that one doctor brought out, and that is that we would not have abdominal infections had more drains been placed in the abdomen. The infection is not in the abdomen; the infection was in the abdominal wound in the layer between the fascia and the fat.

Ether is used as an antiseptic. I have adopted practically every method I have seen described for preventing infection. I used ether and I did not see that it did any good. I have used other antiseptics and I do not see that they did any good. As to the value of mercurochrome, I can only say that primarily we use plain serile gauze, and I think if we can keep the wound drained for a few hours until it is walled off, the spread of infection is prevented. However, at times, there is slight

discoloration of the fascia after the gauze is removed, but since we use mercurochrome we do not have that. Therefore, I believe it has some effect as an antiseptic.

In regard to closure of the wound, I can remember an article by one doctor, one of the older doctors, who advocated leaving the wound open, and I have seen the whole wound margin black—fat and muscle and fascia and everything. It was superficial and being exposed to the light and air cleared up, but what I was after was the wound which would heal by granulation and it took me quite a while to do it. What I was after was to devise some means by which we could cut down the prolonged hospital stay.

Doctor Miller spoke of abdominal abscess. I agree with him fully as to the treatment, but I do not believe that would be classified under the same category as wound infection. These infections are malignant and you find them in a large number of cases in ruptured appendix and gall bladder and if you are not on your guard you will have a patient in extremis before you know it.

I believe if you will try this method you will be very much gratified with your results.

FINDINGS IN 733 CONSECUTIVE UROLOGICAL CASES SEEN IN CONSULTATION.*

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AND
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NEW ORLEANS.

The present review comprises a series of cases observed during a three-year period, from January 1, 1922, to January 1, 1925, and embraces seven hundred and thirty-three consecutive cystoscopic investigations made at the request of the attending physician. In these instances we acted merely as consultant. No cases in our private practice are included in the series. We feel that a compilation such as this can furnish the general practitioner with a fair estimate of the relative frequency with which he will encounter the different urinary ailments and by directing attention to the ultimate findings he can be appraised of the value such examinations may hold in arriving at a correct diagnosis. The data must necessarily be incomplete as the duration of illness, age of patient and tentative diagnosis were not always recorded. Many of the cases were out-of-town patients brought in by their family physician, and not infrequently cystoscoped "between trains." This necessitated working expeditiously, and did not allow the urologist much time for obtaining a complete history of the case. But the main features of such examinations were recorded and the material was considered of sufficient clinical value to present at this time.

The findings in the series are grouped under three heads for convenience of study, viz., upper urinary tract, lower urinary tract, and hematuria. We deem this latter symptom (hematuria) worthy of separate consideration in order that we might bring, more forcibly, this all important finding to the attention of our listeners. While the total number of examinations are listed as seven hundred and thirty-three, the grand total number of findings are somewhat larger due to the listing of certain complications in their respective columns: for example, we may have noted a renal calculus with hematuria, pyelonephritis and cystitis. This would give us, under our classification, three separate findings in the same case. We have purposely omitted the "complaint" and "symptomology" and confined ourselves, with few exceptions, to the pathological condition. Treatment is considered in certain cases where it was thought to be of sufficient interest to comment upon.

While it is not our intention to minimize the importance of complete urological examinations, yet a careful analysis of this series reveals sixty-six cases cystoscoped with negative findings. The reasons for demanding instrumental investigations were: obscure abdominal pain, vague X-ray findings, giving a history of some former urological condition, hematuria and pyuria. These two last named conditions (hematuria and pyuria) call for a word of caution regarding the importance of properly col-

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lecting and examining specimens of urine from female patients. Because of the risk of contamination from the urethra and external genitals, the voided specimens being simply a washing of these organs plus some of the dirt from the vessels into which it is passed, *one must always catheterize females* under aseptic conditions, centrifugalize the urine, stain some of the sediment and examine microscopically. Numerous cases come to us simply with a diagnosis of pyuria or with a report from some laboratory that pus was found in the urine. A careful examination by the urologist of a catheterized specimen fails to show pus or other abnormal constituent; a visual examination of the patients' external genitals reveals a urethritis or other infection of the parts. True, it proves to be a urological condition, but not one for cystoscopy. Yet the patient has been sent in expressly for that purpose. Upon questioning the patient we find that she was not catheterized; that her physician requested that she pass some urine in a vessel and send it to him for examination. It may be difficult for the general practitioner to get the consent of some of his patients to be catheterized, but we believe that if the situation is carefully explained, this feeling of false modesty can be overcome. The more educated patients become to the importance of such procedures, and the more insistent doctors are in practicing scientific medicine, just so much better will be the results achieved. It is little compliment to the physicians' ability to have a case sent back to him with negative findings after his telling the patient that she had pus in her urine and needed a cystoscopy. A female catheter is as much a necessity in the equipment of the physician as the thermometer or the stethescope. Explain to your patient what happens to a voided specimen, and the importance of a catheterized one. Either do not ask for their consent to catheterization or refuse an opinion if they demure.

Pyuria may or may not be a symptom of grave importance, but it certainly calls for all the resources at our command to determine the cause and the location of the same. Smears from the urethra, massage of the prostrate and vesicles and an examination of these secretions, cystoscopy, ureteral catheterization (with a microscopic examination of a stained urine sediment)—all these, separate or collectively furnish the necessary data upon which we base a diagnosis. Hematuria as a clinical entity does not exist but it is always a symptom of some serious pathology that requires immediate attention. Bloody urine must always be looked upon as a dangerous symptom until proven otherwise.

Benign papilloma of the female urethra (caruncle) were diagnosed in twenty-one cases. These small growths are seldom recognized, and when they are the physicians usually passes them by as a matter of no consequence, yet trivial as might be the pain, discomfort and embarrassment to the patient, with a conversion from a benign to a malignant state, it becomes a matter that must demand most serious consideration. These tumors occur just external to, or within, the urinary meatus as small papilloma or hemangioma. Microscopically they are very much like the ordinary seed warts seen on the extremities. Pain, frequency, burning and difficult urination are the symptoms most often complained of. There is usually an associated urethritis and these patients will remark that they suffer no little embarassment from frequency—that they are unable to attend any social function whatever without this most annoying occurance. The treatment is simple. A small needle electrode, connected to a diathermy machine, is inserted directly into the growth and with a moderate amount of current the destruction is completed usually at one sitting.

Primary carcinoma of the female urethra were observed in two cases. The diagnosis was made by palpation and careful sectioning. The abundant lymphatic supply of this area provides an excellent means of dissemination of cancer cells and if allowed to reach the stage of metastasis there is little

or no hope for recovery. When the condition is recognized early it can be completely destroyed by diathermy. Only such strictures of the female urethra that required attention prior to cystoscopy are noted here. The adult female urethra should easily accommodate a 24 F. cystoscope and, as stated by many authorities, should take a 30 F. sound. Thirty-three cases received treatment for this condition before cystoscopy. The symptoms here are very similar to those enumerated under papilloma and are, as in the male, a frequent cause of persistant urethal discharge. The treatment is one of gradual dilatation up to 30 F. or higher if advisable. As a complication cystitis and trigonitis was found in 260 or 35 per cent of cases and was usually accompanied by urethritis.

Multiple papilloma of the male urethra occurred in two cases. These patients complained of burning, frequency and inability to completely empty the bladder. They were removed under cocain anesthesia through the cysto-urethroscope by diathermy. Only such cases of prostatic hypertrophy in which other examinations proved less accurate are mentioned in the table. Median and lateral lobe enlargements cannot be accurately diagnosed by rectal palpation.

Calculi, papilloma, papillary and scirrhus carcinoma of the bladder were found equally among males and females; frequency occurred in the same ratio also. The seriousness of this trio recalls the grave significance that attaches itself to hematuria. All of the cases observed presented marked hematuria, with one exception. This was in a case of a calculus about the size of a walnut, observed in a young adult male who came for examination complaining of acute pain in the lower part of the abdomen, the same radiating down the right thigh and to the lumbo-sacral region. He had been treated for two years for a Neisserian infection. The stone was in the bladder and was removed by suprapubic cystotomy.

Uurethritis in the female and posterior urethritis associated with prostatitis in the male are not listed in the table as they are considered complication or extensions of infections from sources not belonging to this particular group of cases.

A diagnosis of pyelonephritis was made in 221 or 30 per cent of cases in this series. It was found to be more frequent in women; a preponderance of infections were in the right kidney. Under this heading we have grouped all infections of the renal pelvis and that part of the kidney tissue so closely associated with urinary excretion. From this study it appears that women are more susceptible to disease in the urinary tract than men. This may be accounted for the natural tendency of the female to modesty, which frequently leads to over-distention of the bladder and the resultant injurious effects as are caused by: back pressure on the ureters and kidneys; pregnancy with its interference of drainage; sedentary habits and enteroptosis.

Ureteral calculi were found in about equal numbers in the right and left sides. The obstructed ureter cases include those where neither catheters nor bougies would pass to kidney at the sitting, and which could not be classified under any definite heading in the table. They were most probably due to spasm, kink, ultra X-ray calculi, or, last but not least, faulty technique.

The x-ray diagnosed 18 cases of renal calculi. Combined x-ray and cystoscopic examination revealed 23 cases of pyonephrosis 18 cases of hydronephrosis and 10 cases of pyo-hydro-nephrosis. We have included the nephrectomized cases to show their relative frequency. None of the conditions in Table No. 1, with the exception of renal and ureteral calculi, could have been diagnosed without the aid of the cystoscope and few without the x-ray and the microscope.

CONCLUSIONS.

1. Cystoscopy is not demanded in the routine examination of every urological case.

The employment of the procedure should be left to the discretion of the urologist.

2. More care should be exercised in collecting specimens of urine in suspected cases of pyuria and hematuria in women. When positive findings prevail cystoscopy should be done immediately, the cause demonstrated and treatment promptly instituted.

3. Cases that present clinical evidence of stone, tumor, pain referable to the kidney or ureter, obstruction or stricture of the ureter should receive a most painstaking examination including urograms.

4. The advent of the cystoscope and the x-ray, and their scientific application to the study of the urinary tract, brings urology to the forefront as an agent whose acumen will obviate the necessity of many needless exploratory surgical procedures.

TABLE NO. 1.

UPPER URINARY TRACT CASES.

	Right	Left	Bilateral	Total	Grand Total
Pyelonephritis					221
(a) Male	21	24	50	95	
(b) Female	41	31	54	126	
Ureteral Calculi					54
(a) Male	13	13	0	26	
(b) Female	13	14	1	28	
Obstructed Ureter					29
(a) Male	6	5	1	12	
(b) Female	9	6	2	17	
Pyonephrosis					23
(a) Male	7	3	0	10	
(b) Female	6	7	0	13	
Stricture Ureter					19
(a) Male	3	0	0	3	
(b) Female	7	9	0	16	
Renal Calculi					19
(a) Male	2	3	0	5	
(b) Female	10	2	2	14	
Hydronephrosis					18
(a) Male	5	3	0	8	
(b) Female	3	7	0	10	
Ptosed Kidney					15
(a) Male	4	5	3	12	
(b) Female	2	1	0	3	
Nephrectomized Cases					10
(a) Male	3	1	0	4	
(b) Female	4	2	0	6	
Pyohydronephrosis					10
(a) Male	1	3	0	4	
(b) Female	2	4	0	6	
Perinephritic Abscess					8
(a) Male	3	0	0	3	
(b) Female	3	2	0	5	
Tuberculous Kidney					6
(a) Male	1	0	0	1	
(b) Female	2	2	1	5	
Double Ureters					2
(a) Male	0	0	0	0	
(b) Female	0	1	1	2	

TABLE NO. 2.

LOWER URINARY TRACT CASES.

	Male	Female	Total
Cystitis	114	146	260
Nephritis, chronic	29	46	75
Negative findings	14	52	66
Stricture Urethra, female	—	33	33
Hypertrophy Prostrate	24	—	24
Papilloma Urethra	2	21	23
Papillary Carcinoma Bladder	4	11	15
Papilloma Bladder	5	6	11
Scirrhus Carcinoma Bladder	6	5	11
Calculi Bladder	6	4	10
Carcinoma Prostrate	9	—	9
Vesticovaginal Fistulae	—	8	8
Syphilis Bladder	3	1	4
Diverticulae Bladder	3	1	4
Hunner Ulcer	0	2	2
Tuberculous Bladder	0	2	2
Carcinoma Urethra, primary	0	2	2

DISCUSSION.

Dr. W. A. Reed (New Orleans): Those of you who are not doing urology as a specialty, I am sure, are not able to appreciate the amount of study that the paper of Doctors Walther and Peacock entailed. They report 733 cases in this article, and I am positive that it represents more than 733 hours of painstaking work. For that reason I believe we ought to appreciate what they have done in giving this interesting data to us so massed that it can be read to us in a short time. Any small part of this paper could easily be taken as the subject for many other interesting articles.

There are several points that might be brought out. The fact that 66 cases showed negative findings is certainly significant, and means that the catheter should be a part of the physician's armamentarium. However, I think that there has been a great improvement among the general practitioners in this respect. A few years ago we would have found many more cases with negative findings than that. I believe that the physician of today is realizing the necessity of the employment of the catheter, the use of which may bring out several things. For example, we immediately note the presence of any urethritis, and the fact that the catheter, even though not a small one, is partially obstructed in its passage through the urethra, shows at once that a stricture is present. Many time we meet cases having urethral strictures that are not recognized by the passage of a small catheter. A No. 24 F. cystoscope may even be passed into the urethra without difficulty, and a stricture still be present. It is here that a No. 26 or 28 olive will demonstrate the true condition present. If a glass catheter is used, although today their use is forbidden in many of the hospitals, one may clearly bring out the presence of stones in the bladder. In office practice we find that the employment of a catheter is not at all difficult; simply tell the patient that you are going to secure a specimen of urine by catheter,

TABLE NO. 3.

HEMATURIA CASES.

Hematuria (Male)	Right Kidney	Pyelonephritis	2	Total 7
		Calculi	2	
		Unknown	3	
	Bilateral	Pyelonephritis	2	Total 5
		Calculi	2	
		Syphilis	1	
	Left Kidney	Calculi	1	Total 6
		Unknown	5	
	Bladder	Carcinoma Postate	5	Total 29
		Papilloma	5	
		Papillary Carcinoma	9	
		Hypertrophy Prostate	5	
		Calculi	5	
Hematuria (Female)	Right Kidney	Calculi	1	Total 2
		Tuberculosis	1	
	Bilateral	Calculi	1	Total 2
		Unknown	1	
	Left Kidney	Pyelonephritis	1	Total 7
		Calculi	2	
		Unknown	4	
	Bladder	Papillary Carcinoma	17	Total 33
		Papilloma	4	
		Calculi	4	
		Polypi	3	
		Urethritis	3	
		Ulcers	2	

and as a rule you do not have to explain why; they all appreciate the fact that you are trying to help them.

Hematuria has been properly grouped under a special heading. When one speaks of hematuria it brings up eight or nine interesting and at times serious possibilities. A case of hematuria must be examined immediately, to eliminate one by one those things that have to be considered in making a diagnosis. Nephritis, of course, is the principal cause of hematuria. Then we have to consider calculi, malignancy, hydronephrosis, tuberculosis, caruncles in the female, and prostatic and urethral trouble in the male.

It is interesting to note that out of the 733 cases there were 23 urethral caruncle found. This again shows the painstaking work of the investigaters, because it is only by the most careful inspection and examination of the urethra that caruncles are found. Aside from the fact that they can cause the most distressing symptoms, there is no doubt that malignancy does develop where caruncles are present more quickly than otherwise, and for this reason should be destroyed immediately.

Dr. Abraham Mattes (New Orleans): This paper does prove the value of the cystoscope. As a matter of fact, if the cystoscope were used more frequently, the diagnosis would reach a level commensurate with the diagnosis in other branches of medicine. The reasons for using the cystoscope can be grouped under four heads: first, pain in some locality of the urinary tract; second, frequency of urination; but the two major causes are the presence of blood or pus in the urine. The persistent presence of blood or pus in the urine very many times drives cases from the general man to the specialist, before even a consultation can be requested.

Finding 66 cases with no lesions in the urinary tract in a series of 733 cases does prove that when these cases come to the specialist most of the diagnosis can be proved, but I believe the number of negative findings in these cases could be reduced by closer examination and greater attention paid to the neck of the bladder.

A large number of cases consult the urologist for frequency, having a clear urine. It puzzles the general man and the surgeon and at times the urologist to know what to do with a case that is passing urine every few minutes. In a large per-

centage of these cases, if examined with the cystourethroscope or posterior urethroscope there will be disclosed some lesion of the neck of the bladder or posterior urethra, that will come around with very simple treatment—as cauterization of an edematous area; the use of silver nitrate to destroy and flatten out small projections as well as to destroy vascular anomalies. Fibrous papilloma of the neck of the bladder is met with more frequently than we think and certainly accounts for the symptoms in a fair number of cases.

The question of chronic appendicitis versus right uretral conditions—Doctor Walther could not stress everything in his paper, but I think it is the proper time to bring this subject to your attention. In 40 percent of cases operated on for chronic appendicitis there is no relief as a result of the operation: symptoms persist. In a fair percentage of cases this is true also of some so called ulcers of the stomach and duodenum, as well as gall bladder diseases. These, at times, give rise to identical symptoms on the right side, but proper urological examination would eliminate them and appropriate treatment cure the patient. I have on record the history of 25 cases operated on in the last year for appendicitis or gall bladder disease with no relief symptoms. The cause was in the right ureter or kidney and included ureteral strictures, angulations, kinks, dilatations, ureteral calculi, ptosed kidneys and renal conditions. They were finally cured by reteral dilatation and other urological measures. As we are not all equipped with diathermy machines a simple treatment within the province of every practitioner is suggested. The treatment is injection of one or more drops of one to ten per cent silver nitrate into the caruncle. It does relieve the sense of burning and pain with cessation of symptoms.

The subject of obscure signs and symptoms in the aged—Occasionally in the aged you will have a case with clear urine, but in which you have symptoms on one side or another, requiring cystoscopic examination definitely to exclude a silent pyonephrosis—or blocked kidney. It should be remembered that often in the aged the symptoms are there and in spite of the fact that urinalysis gives negative findings cystoscopic examination with urethral catheterization will avoid an unwarranted exploratory and reward us with definite information involving the kidney and ureter.

Dr. M. H. Foster (Alexandria): Doctor Walther mentioned the fact that cases were referred to him where it was expected that he would carry out cystoscopic procedure and make a report between trains. That same thing has happened to me, and I have gotten into the habit of telling my friends who send work in that way, that if we were dealing with boiler iron we might do it, but since we are dealing with human tissue we must have some consideration for the material.

With regard to catheterization of the female, for obtaining a reliable specimen, there can be no argument because I think every one appreciates the necessity of this procedure for diagnosing conditions of the upper urinary tract. In urethritis, however, exactly the reverse obtains. In this case we must have the specimens pass through the urethra, in order that it may reveal the evidence of involvment of that canal. In this connection, Kidd, of London, calls attention to the fact that we can obtain a specimen for that purpose by having the urine passed while the patient is in a stooped-over position, with feed wide apart—"Arabian fashion," as Kidd says. We do not pay sufficient attention to the manner of obtaining a specimen of urine from the female patient suitable to the purpose for which we wish it.

I would like to have every one appreciate definitely that hematuria is no ordinary condition, and remember that it can, and sometimes does, mean malignancy. We, as urologists, are not prone any more to treat hematuria symptomatically. Day before yesterday I had a case referred for hematuria with the expectation that it was a unilateral, renal hemorrhage. The cystoscope corroborated this. The man was unwilling to submit to X-ray in addition to the systoscopy. He consented to the cystoscopy and I was obliged to treat the case symptomatically against my wishes, stopping the hemorrhage at least temporarily.

In regard to diathermy, I am not willing to give up my cystoscope and ureteral catheters for any other instrument, but in addition to that I think the urological surgeon's equipment is not complete without a good diathermy outfit.

I would like to emphasize another point. We who are urologists appreciate very positively that an adequate estimation of the extent and degree of prostatic hypertrophy cannot be determined by rectal palpation alone. The urological surgeon has proven that it is by the use of the cystoscope and the cystoscope alone, that we get this accurate information.

Another thing is that we should no longer regard an infection of the kidney as pyelitis simply. That is the reason it is emphasized by Keyes and Cabot in Modern Urology, that we discontinue using the term "pyelitis," because we always have a pyelonephritis rather than a simple pyelitis.

Finally, I would like to suggest the more general use of the term "uronephrosis," when we are discussing so-called hydronephrosis.

TREATMENT OF OBSTRUCTIVE JAUNDICE*

S. H. HAIRSTON, M. D.,
MERIDIAN, MISS.

Obstructive jaundice is produced, as you know, by some obstruction of the common or hepatic duct. The bile is re-absorbed and deposited in the tissues. This obstruction is produced by a cholangitis, stone in the common or hepatic duct, a tumor or adhesions in this region, injury of these parts, or certain diseases of the pancreas.

It is not the purpose of this paper to go at length the causes of obstructive jaundice as I feel quite sure these have been thorougly worked out and are laid down in text-books on the subject. It is my purpose to lay stress on the pre-operative and post-operative treatment and give you a brief discussion of the operative procedure. The mortality of surgery for the relief of this condition is high. The operative technique has been well worked out. It is the pre-operative and post-operative treatment that counts most in these cases. It is the thorough understanding of the patient's condition and it requires the best judgment at our command to determine whether they can withstand the ordeal through which they are to go. It behooves us to apply every test known to us to see if the patient has a chance. As I said before, the mortality is high, the patient's life is at stake, and he or she is looking to us and trusting us and God for relief.

These are bad surgical risks. The patient tries to act wisely and thinks it is death without operation and maybe death with it. The fatal cases usually die of post-operative intra-abdominal hemorrhage. In most cases this is only found out at post-mortem. The patient is treated for shock when to our sorrow and chagrin, we find an abdomen full of blood.

When these cases come to the surgeon, it is after long delay, having been treated by many hands and with six months of spinal adjustments. By this time they are exhausted of body and purse. Others may have had one or more operations before without relief.

The post-operative intra-abdominal hemorrhage is attributed largely to a delay in the coagulating time of the blood. Lee and Vincent have demonstrated that this delay is due to a deficiency of calcium in the blood and at the coagulating time this can be decreased by taking calcium lactate by mouth or better calcium chloride by the vein. If five c.c. of a 10% solution of calcium chloride is given by vein each for three days, the coagulating time can be brought within safe limits. After this simple procedure, many cases can undergo a successful operation without the loss of much blood, whereas death may ensue without it. The coagulating time should be reduced to less than nine minutes and all operations should be postponed until this is done. Again, on account of long continued absorption of bile the glycogenic function of the liver has been interferred with. Besides calcium chloride large quantities of water and carbohydrates by mouth are indicated. One thousand c.c. of a 5% glucose solution should be given daily for three days. This is best given as an intravenous drip according to the method suggested by Matas. This increases the glycogen to the tissues and is a great stimulus to kidney function. Parham has pointed out that the bile has a destructive effect on the kidneys and the patient often dies from toxic nephritis.

The treatment of jaundice itself is medical and surgical. From the medical side many remedies have been tried. Jaundice from a simple cholangitis may be treated with medicine, but most cases will clear up if left alone. The diagnosis of a simple cholangitis can not be made, so why temporize? A diagnosis of gall stones can not be made with X-ray unless the stone contains as much as 1.5% of lime salts. Uro-

*Read before Mississippi State Medical Association, Biloxi, May 12-14, 1925.

tropin, turpentine, fresh apple cider, Sherman's Thirty-Six, and other remedies have been tried and have their advocates. Lyon's non-surgical drainage with a Jette tube still has followers principally among specialists in internal medicine. Hugh Young's hexly-resorcinal promises greater hope than any drug from a medical standpoint. Any of these drugs for any other causes of jaundice other than simple cholangitis is useless.

The operative procedure in these cases is often very difficult. They are almost ready for the undertaker rather than the surgeon. Many cases have been operated on before and are what has been termed "surgical junk". Adhesions are often encountered and the operative field is usually flooded with blood. All bleeding vessels should be clamped and tied as you go. This not only saves blood for the patient but a vessel securely tied is not going to bleed thereafter. On account of blood and adhesions the common duct is hard to locate. Almost all inflamed tissues look alike and a mistake may mean serious results. If you are not sure you have located the common duct a small aspirating needle on a glass barrel syringe will help you and it will do no harm if you puncture some other organ or vessel. After the common duct has been located, which you will find to be distended, it is now time to locate the cause of the obstruction. Stone in the common or hepatic duct is the greatest cause of obstruction. Jaundice following gall bladder operations is due mostly to injuries to the bile duct. This is done by clamping the duct in grabbing for a bleeding vessel, or, extending the forceps too far when clamping the cystic duct. If a stone is in the common or cystic duct, a simple removal with drainage of same will usually suffice. Before this is done, however, it is to be ascertained if the common duct opening into the duodenum is patulous. This can be found out by passing a flexible probe through the common duct into the duodenum. If this opening is obliterated and can not be opened with a probe or dilating forcep, some reconstruction operation is in order. If the obstruction is in the common duct and no disease of the gall bladder or cystic duct an anostomoses of fundus of gall bladder can be made with the duodenum. Right here, I want to say that it is my opinion that all gall bladders should be removed in the presence of an obstructive jaundice. Also all gall bladders should be removed that are diseased either with or without stones except those acutely inflamed and containing pus with high fever. The same contra indications hold for removal of an abscessed appendix that endangers a patient's life. Removal of the gall bladder at this time often prevents a subsequent operation. Where the common duct has to be resected, the duodenal flap recommended by Walton and the end to end anostomoses by Sullivan can be used. The Mayos use a short rubber tube extending from the common duct to the duodenum and burying this with no external drainage. This is covered over with two layers of cat gut sutures and is anchored above with same. As soon as the cat gut is absorbed, the tube passes into the intestine. In my hands this has given me the most satisfactory results. It is claimed that the stricture will reform after this tube passes. I have been on the lookout for just such a condition and it has now been five years since my first operation of this kind. I have five such cases with no bad results of this kind so far. The T-shaped tube is used by some but has been discarded by me on account of a long period of convalescence. In my series of twelve cases of obstructive jaundice five were cared for by simple drainage after the cause was removed and five had to be re-opened and some form of re-construction operation performed. Only one case out of twelve died. Post-mortem showed this case died from a post-operative intra-abdominal hemorrhage. I feel sure this case was lost on account of the lack of a proper pre-operative preparation.

Where the patient has had a pre-operative calcium chloride treatment, I make it a rule to repeat the dose once after operation, provided the patient is not in too pro-

found a shock. If the patient has lost a grea deal of blood and is still losing it, there is no treatment to my mind that takes the place of a blood transfusion. On account of the low vitality of the patient, these cases always suffer more or less shock. The intravenous 5% glucose solution given by the drip method is the ideal treatment. If they do not react soon and if there is any acetone or diacetic acid still in the urine, it is well to give in connection with the glucose solution twenty units of insulin, for two reasons: First, if the urine shows diacetic acid, acetone, or oxybuteric acid, there is evidently only a partial metabolism of fat going on because the tissues are unable to burn carbohydrates. Now, under such circumstances, the insulin will immediately create a hot carbohydrate fire, so to speak, which will completely burn the fat, leaving as in products of this combustion CO2 and water. Second, with accumulation of sugar in the blood stream due to a failure of the tissues to properly burn this element, the excess is eliminated by the kidney as glycosuria. This high blood sugar creates an excessive activity of the kidney structures thereby depriving the tissues of precious fluids so necessary in the control of shock. A polyuria can be immediately controlled by the administration of insulin, properly guarded with a sufficient carbohydrate intake, thus contributing specifically to the control of shock. Shock in cases showing no ketosis and is accompanied by polyuria or high blood sugar could not rationally be treated by insulin.

THE DENTAL X-RAY PICTURE*

W. A. LURIE, M. D.,

NEW ORLEANS.

In presenting the subject of the dental roentgenogram for your consideration, I do so with the firm conviction that you are one and all interested in preventive medicine. Feeling thus assured, I am confident that since the practice of the theory of focal infection, the mouth has found a prominent place in your opinions, as being the source of many of these foci. With the development of the prominence of the mouth, the importance of the dental roentgenogram has kept pace. The question of our knowledge of what is a picture and its relation to various symptoms and conditions is the subject of this paper. In the brief time allotted, I must therefore be general in my comments rather than specific.

The dental roentgenogram is necessary in our present day search for foci of infection. Paradoxically, instead of explaining many conditions and preventing a uselss loss of teeth, the dental roentgenogram seems to have become the cause of the discovery of many more foci about the mouth than it was thought had existed. It pictures many conditions about the teeth which were not suspected and decidedly unlooked for. In the role of disease prevention, the visualization of the dental areas is imperative. It is necessary to gain an intimate knowledge of the condition of the apical and periapical areas about teeth, and the condition of the alveolar process. The dental x-ray picture there-in develops its greatest necessity, as a means of diagnosis, in the field of prevention.

Through the commercialism of the x-ray equipment manufacturers many machines have been installed to take dental x-ray pictures, so that to-day such service is within the reach of almost any patient who may require it. There are countless numbers of expert x-ray machine operators, who take excellent pictures. There still remain however, a very limited few who can read these pictures, yet still less who understand the value of the conditions which they see pictured. There are a very limited number who are capable of interpreting the dental x-ray findings as the causative factor in a diseased condition or who can intelligently tell what conditions may result from the pictured findings. The relation of x-ray find-

*Read before the Orleans Parish Medical Society, May 25th, 1925.

ings to the associated symptomatology is not understood.

To the patient, the x-ray picture is valueless unless a competent understanding of it is possible. Such reading is a rarity rather than a common practice. For the most part all that is known by the vast majority of the dental profession is what has been taught them by the manufacturers who sell them their machines. They learn to recognize what appears to be an area of absorption and then deduct from such findings that infection exists. They learn to recognize conditions some of which are termed apical infections and some termed pyorrhetic conditions. Most often the picture is used only to prove that a root canal is or is not properly filled.

The vast majority of physicians are less trained in the interpretation of the dental roentgenogram than are dentists. However the dental roentgenogram and its proper interpretation form an important part of their diagnosis in seeking foci of infection.

The status of the perfection of the interpretation of the dental roentgenogram has not risen to the standard of that of the interpretation of the x-ray picture of other portions of body, as the gall-bladder, gastro-intestinal tract or pleural cavity. Neither has it kept pace with our knowledge of mouth conditions. As a matter of fact I believe the oral cavity is pictured, examined and treated more often than any other part of the body, so why this discrepancy and lack of knowledge of so much treated and easily pictured an area?

The answer no doubt can be found in the fact that there are so many operators, each using his own technic and having his own idea of interpretations. This prevents a classification of pictured conditions and a determination of their pathological significance, or, association with a definite symptomatology. In a few words it can be said to be due to a lack of standardization, such as has developed in the study of pictures and association of symptoms elsewhere about the body.

The dental x-ray picture can and does portray more than is usually read in it. The greatest of error in the use of the dental x-ray picture, as a means of diagnosis, is that it is too often used to confirm or disprove what are the more easily recognized conditions and rarely intellegently used to complete a diagnosis. The dental roentgenogram outlines conditions as they exist beyond the surface and out of sight just as x-ray pictures anywhere do. It should be used for such determinations, and its importance should not be minimized. The greatest field for the dental roentgenogram is in the determination of foci of infection and irritation. In this direction also, lies the greatest field for possible error.

One must never lose sight of the fact that the dental roentgenogram, like roentgenograms of any other portion of the body, has no value except as the findings there on can be associated with the clinical facts and findings in the case. I refer to the often made mistake of the unnecessary loss of teeth for the cure of a toxic condition which has its origin elsewhere and in which some minor local secondary condition about the mouth is pictured. The local condition is often of coincident rather than of significant pathology. In many cases of pyorrhea, teeth are removed with no benefit to the general symptoms in the case. The pyorrhea was only a local manifestation of a general condition. After the extraction of the teeth, the degeneration of the alveolar process continues and likewise the toxicity. Properly taken and properly interpreted dental roentgenograms can determine which of such teeth, if any should be sacrificed, and details why.

As physicians, we recognize that under varying conditions a person may react differently to a given source of irritation or infections. Under normal conditions of resistance a patient may be capable of car-

ing for a great amount of infection. The advent of some change in habit or an accident might alter the physical resistance generally, and prove the spark sufficient to light into activity a dormant area of infection or toxicity.

It is the part of wisdom to be prepared by knowing where infections are, and the degree of possible toxicity an individual is subjecting himself to. It is an important point in the prevention of many of the degenerative diseases and in the prevention of cardiac changes. Therefore it is important in any suspicous case, or where the mouth is to be excluded as a possible source of infection, to have a set of well taken and properly interpreted roentgenograms of the teeth, and alveolar process.

The time of pregnancy is the time of an alteration in the resistance of the patient generally. This reduction of resistance is lowered equally against bacterial and chemical toxcities. At such times all foci of bacterial or chemical origin should be sought out. The dental roentgenograms portray them. By the proper interpretation of the pictures they can be discovered.

In cases of pregnancy in which an examination of the condition of the mouth is made, through the dental x-ray one may be able to discover the reason for the increase of toxicity from old infections. Many times during pregnancy, an area which had been previously pictured as infected yet in an inactive or walled off state may become actively infective. This is a warning of trouble and can be discovered. The dental x-ray properly taken, gives warning of the possibility of the approach of such disasters. What obstetrician does not feel safer over his patient when he knows that all avenues of infection are removed or at least such as may occur have been definitely found, so as to be under immediate control. By immediate control I mean so that they may be given attention in whatever direction may be necessary. At this time I want to emphasize the fact that during pregnancy there is no difference pictured roentgenographically about the mouth which could be considered an indication against oral surgery or tooth removal. There is no difference in the patient's oral condition as a surgical risk than exists anywhere else about the body at such times. If infection is present about the mouth during pregnancy, and surgery is indicated, and it often is, it should be done, not put off.

In tuberculosis, secondary infection and all forms of toxicity are to be avoided. The patient's resistance is to be conserved and if possible bettered. What case therefore, could not be benefitted by the discovery and removal of sources of toxicity or irritation? In tubercular cases the appearance of the alveolar process is important. The necessity for calcium through a systemic drainage of that element causes a depletion of that salt in the alveolar process, and instead of a process pictured with heavily indicated interstitial bone, the intercellular wall seems thinned out and picture less resistance. Perhaps because of a comparatively greater loss of calcium and bone salts in the oral areas, infections pictured during tuberculosis are often found to cover a larger area and appear not so well walled off. This is in contradistinction to infections at times when there is a greater local as well as general resistance, than is the rule in tuberculosis. The inference is obvious. Find infections about the mouth by means of the dental roentgenogram, and remove such foci of infection as are found.

The teeth are blamed for rheumatic conditions and in many instances justly so. No doubt many of you have had such patients in whom teeth and other organs harboring infection have been sacrificed. In many of these cases dental roentgenograms taken before surgery was done, may or may not have pictured pathology. Through a lack of authoritative knowledge of interpretations by the medical or den-

tal attendant the patient submitted to the loss of his teeth in the hope of cure. After such sacrifice the patient often has not been benefitted. I am not holding the dental roentgenogram as a panacea for the discovery of toxic foci and the directing of their cure, I do say however that the careful picturing of the dental areas will often discover instances in which teeth should *NOT* be extracted. On the other hand there may be discovered old infections remaining after tooth removal, or during removal, roots may be broken and left in position to continue the infection. A tooth with an unsuspected putrid pulp may be pictured. Foci such as these should be removed.

Often there are pictured in the dental areas, teeth with greatly enlarged roots. This condition is not an exostosis but a general and symetrical enlargement. In these teeth there is no disturbance of the size nor shape of the root canal nor the pulp chamber. These teeth retain their vitality. The peridental membrane is pictured normally surrounding the enlarged root. The condition I describe and which I hope to show you later is a secondary condition and incapable of causing symptoms except by pressure. Such teeth may be noted in cases which medically are considered as having an acid diathasis or are of gouty type. They are pictured in cases of arthritis deformans rather than rheumatism. They are also found in cases of migrain and gouty headache. This condition is a local change the result of a toxamia of other than oral origin. The condition pictured about the teeth is similar to the condition about the smaller joints often seen in such diseases. This similarity in the pictured conditions and the associated finding in teeth and joints in these cases is further recognizable when one considers that the tooth and tooth socket bear a relation to one another similar to that which the bony parts and membranes of a joint bear to one another. It is obvious that the removal of teeth such as just described will not cure arthritis deformans nor gout nor gouty headache any more than does the amputation of such an affected joint aid in the cure of these conditions.

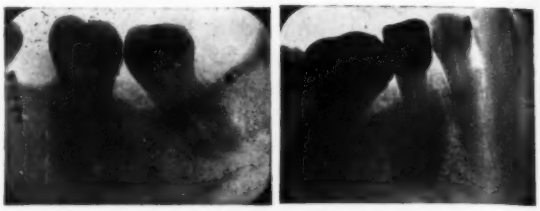

Fig. I—In illustration of condition described in paper. Note normal root canal shadow and lack of break in outline of Lamina Dura.

Time will not permit the discussion nor the explanation of many of the errors that are being made in the interpretation of the dental roentgenogram, nor the detailing of all the conditions in which the dental roentgenogram may prove helpful. Therefore in closing only a few of the most frequent errors will be mentioned.

Of common errors in pictures of the dental area, might be cited the inability to locate the tooth pictured when such a picture is indescriminately picked up. The mistaking of normal bone canals and foramina for pathological conditions. Among these the mental foramen and inferior dental canal in the lower jaws are the most often confused while in the upper jaws the incisor foramina, opening back of the upper central incisor teeth are most often mistaken for toxic areas. The maxillary sinus which is of indefinite size is variously pictured and causes much confusion. However much information of that area can be had from a well taken dental roentgenogram.

To summarize I wish to say that a great amount of good can result from the proper interpretation of a dental roentgenogram. The greatest part of this benefit being along lines of prevention rather than cure. In my opinion there are too few dental pictures being taken, yet too many for the general understanding of the med-

ical and dental profession. There should be some standardization of our knowledge on the subject. An examination of the mouth for the purpose of finding possible foci of infection, or irritation is never complete without a full set of dental roentgenograms and an intelligent reading of them. The edentulous jaw is no contra-indication to dental roentgenography for all too often broken and forgotten roots, residual infection or improperly healed alveolar process can be found. Many times all the teeth, none of which were the seat of trouble are sacrificed only to leave an unerupted tooth or an unsuspected cyst to continue irritation or toxicity. The careful interpretation of pictures taken before extraction, with an authoritative opinion often prevents useless tooth sacrifice, while pictures taken after extractions show what errors of omission and commission have been committed.

Fig. II—Irritation suspected of being pyorrhetic, caused by foreign bodies which proved to be parts of deciduous teeth.

DISCUSSION.

Dr. H. B. Gessner (New Orleans): The part of Dr. Lurie's interesting paper which appeals to me most is the reference to the importance of checking up, having a proper check up between the laboratory and the physical findings. It is evident that if a man makes a picture, interprets it and does not find out his mistakes he is not going to improve. As Dr. Lurie states, a great many teeth have been uselessly extracted, creating a somewhat unfavorable impression on the one who lost his teeth and continued to suffer without being benefited. Dr. Kells, one of the local pioneers in dental radiography, who through his writings has contributed much valuable information on this subject, on the fact that changes about the teeth, in the alveoli and apices, sometimes interpreted as causes, or foci, of infections, are infections due to foci elsewhere, so it is quite easy for those who do not question to believe they see the cause of infection when they really see the result. In New Orleans we do not have the check up between the laboratory and the X-ray workers that we ought to have. Dr. Donald interpreted a picture that he made of a patient in my service at Charity Hospital; at the time I told him in jest that if my findings did not tally with his he would surely hear of it. He said that was his usual experience; when the X-ray findings and interpretations were correct they heard nothing about it; if at fault, the reverse obtained. At the Rochester Clinic there is a prompt report to the Roentgenologist of the findings in all cases where X-ray pictures have been taken. In the case of gastro-intestinal series a prompt report goes to the Radiologist and he finds out just how far he is right, and how far wrong. Neither at Touro Infirmary or at Charity Hospital is there the proper checking up between the laboratory and the clinician.

I will pass from the question of dental foci to the question of foci in general. My opinion, based solely on my own experience, is that only in the minority of cases do patients have foci definitely determined. In tonsilitis and sinusitis we discover foci for arthitis, pyelitis or other conditions with comparative ease, removing the cause by surgical treatment, but where the infections are deep-seated, only in a few cases are we successful in locating the cause. If time permits, a comparison of notes from my colleagues in the audience here tonight will be appreciated.

In a case where the gall-bladder is suspected as responsible for the symptoms, although the patient presents none of the clinical symptoms of gall-bladder pathology, we hesitate to open the abdomen and do a cholecystectomy, or drain, in the hope of removing a focus of arthritis.

I would like to know if I am exceptional in being successful in the minority of cases only?

Dr. E. A. Ficklin (New Orleans): Removal of the original focus of infection is not always curative. An article appeared several years ago which offered a plausable explanation of this occurrence. In cases of arthritis, and especially of endocarditis, bacteria are carried from the original focus and develop secondary foci in the joints or in the endocardium. In such cases the patient's powers of resistance may be raised by the removal of the primary focus so that the secondary manifestations may be overcome, but in the majority of cases a low grade infection persists in distant parts of the body. This seems to be a logical explanation of the discouraging results that often follow extensive extractions and tonsilectomies.

Dr. C. C. Bass (New Orleans): I have no desire to detract from the value of the X-ray in diagnosis of foci of infection in the mouth—it is

certainly of great value. I would call attention, however, to the fact that most of the pictures that Dr. Lurie showed are the end or advanced stage of a disease of long existence and usually the conditions present are demonstrable without the use of the X-ray. Of course, as far as diseased roots are concerned, they can be demonstrated better with the X-ray, but for ordinary purposes this is not necessary to demonstrate the existence of pyorrhea or focal infections.

I also wish to point out the fact that focal infections in the mouth are a part of the usual condition of adults and of old people. It is a well established fact that all people lose their teeth with pyorrhea sooner or later if they live long enough. Although the X-ray is of great value, it is not at all necessary to show the existence of this disease, especially in the very late stages. In such cases the teeth are slanted or entirely out of position and it is certainly easy to make a diagnosis by ordinary examination with proper instrumetns, or even by observation only.

Dr. R. S. Crichlow (New Orleans): There is an interesting point that has come to my observation recently in regard to the unerupted teeth nerve symptoms that have been experienced by patients. A short time back a patient came to me. She had been examined by quite a number of eminent physicians. There was no fault to find with the examinations at all, but in the radiographs of teeth there were but two made, a bicuspid in each instance. I had several complete radiographs made and found that she had four unerupted molars pressing on the second molar and causing considerable discomfort. After the operation had been done she experienced considerable relief from her nervous symptoms and has been gradually getting better and better.

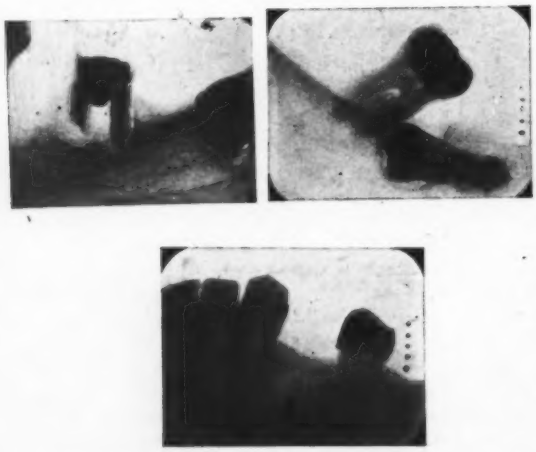

Fig. III—Unsuspected irritants disclosed by x-ray. Two are impacted unerupted teeth and third is a piece of filling which was broken off at time of extraction and remained in tooth socket.

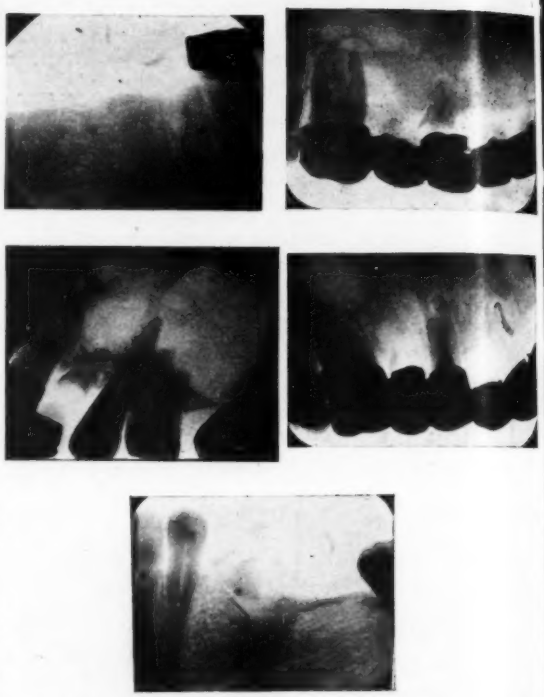

Fig. IV—Conditions impossible of diagnosis except by x-ray. Infected alveolar process remaining after extraction, broken roots and root canal fillings and parts of instruments remaining under bridges continue irritation. Failure to remove encysted infected root permitted extension of necrosis.

With reference to co-operation between clinician and roentgenologist. In the Veterans' Bureau we have had a world of opportunity in checking up along that line. In practically all the government work we have the X-rays of the teeth made and we check these up with the radiologist; we have facilities for it and it is quite interesting to note that when the teeth are extracted or treated there is a second check up and the radiologist knows if his interpretation has been correct, knows exactly what work was done by the dentist and the results obtained therefrom.

Dr. William A. Lurie (closing): I want to thank you for the rather general discussion of my paper.

With reference to Dr. Bass' comments. I thought I had made it clear that, rather than a cure, the dental X-ray picture has a place in preventive medicine. It is of diagnostic value, rather

than curative. Dr. Clarence O. Simpson of St. Louis, Mo., at the Indiana State Dental Association meeting, May, 1924, makes this point: "More than one-half of the conditions in the mouth cannot be observed without the aid of the X-ray, and the part that is hidden is most important because it is the source of systematic disturbance." "The patient with a number of plupless teeth and ex-

Fig. V—Bismuth paste injected into infected area. Note area of alveolar absorption greater than size of shadow of paste.

tensive restoration should have a general radiographic examination each year, because during that time important changes may occur which require correction." Now, it is true that those cases shown on the sides are end results, but where one is dealing with toxic foci or infection, and teeth are removed, if pictures had not been previously made, there are liable to be cysts or unerupted teeth left behind to continue the trouble. Most of those pictures were in illustration of what one may unsuspectingly find.

I have in mind a very interesting incident that happened recently. A lady was referred to me by an internist and she failed to come. More recently she was referred by a dentist. I X-rayed several of her teeth and found an unerupted bicuspid in the long axis of the jaw under a molar, which was causing her trouble. This patient had a rather persistent gastric condition that had continued up to the time she came under my observation. I suggested that the unerupted tooth be removed and called up the internist. He said: "If you stir up that woman's gastric condition you are going to give me some trouble." The teeth were removed and ten days after, the gastric disturbance had entirely cleared up, and up to the present, which is several months, it has not returned.

Fig. VI—Sterile root canal filling in alveolar process forced through lateral puncture in root. No alveolar absorption pictured.

Now a common misnomer or diagnosis that is usually made, that of "a granuloma at the apex of the tooth." The granuloma is only a local condition. It does not indicate the amount of intoxication that is taking place. Changes take place somewhere else and are of greater importance than the local manifestation. I do not believe a diagnosis of granuloma should be made. In describing such a finding it is perhaps better to say that an area of alveolar absorption is discovered, rather than to try to defferentiate between the activity or inactivity of a process, from the X-ray finding. It's potency as a source of toxicity cannot be unerringly determined.

An English Government Report of September 15, 1923, makes point of the fact that one-third of the cardio-vascular diseases of that country are related to conditions of the oral cavity. It would indeed be a bad thing for the human race if, on the strength of such a report, we went ahead without X-ray assistance and removel all the teeth instead of trying to save some that did not have any infection.

A TECHNIQUE FOR ETHMOIDECTOMY*

J. R. HUME, M. D.,

NEW ORLEANS.

The nearest approach to a complete exenteration of the ethmoidial labyrinth with the minimum amount of danger to the patient is the ideal sought for by all operators in this field. The many and widely varying techniques described in the literature for this operation would indicate a lack of unamnity of opinion, as to the proper method necessary to fulfill the above essential requirements.

No claim is made for originality of the technique, I wish to describe, as it is based in some essential details on the well known Sluder operation, but with the belief that it is equally safe and less difficult of execution, I am prompted to describe a departure from the above mentioned classic.

A local anesthetic, preceded by a hypodermic of from 1-6 to 1-4 grain of mor-

*Read before Mississippi State Medical Association, Biloxi, May 12-14, 1925.

phine sulphate has been used in all but a few cases. Two small cotton tipped applicators saturated in a 10% solution of cocaine are employed. One is inserted between the middle turbinate and septum in the region of the Spheno Palatine Ganglion; the other between the overhang of the turbinate and the lateral wall. At the end of fifteen minutes they are removed and the entire region of the middle and superior meati mopped with solution of Adrenalin Chloride 1-1000. Another five minutes is allowed to elapse before beginning the operative procedure.

The knives with which the major part of the work is done are of the Sluder type, but with the cutting surface extended down the shaft for an additional 15 millimeters.

With the region well exposed between the blades of a long speculum, the knife with its cutting surface turned toward the septum hook up, is introduced beneath the overhang of the middle turbinate and sufficiently high that the first cut which is made forward, and sligtly downward, will sever this body just below its cribriform attachment.

The blades are now changed and the knife with cutting surface downward reinserted to a location immediately below the starting point of the first cut. We now break through the anterior group of cells and make the cuts downward and backward along the body of the turbinate until the anterior wall of the Sphenoid is reached. From this point the cuts are made forward and downward, until the knife penetrates the floor of the posterior cells and is free in the middle meatus.

The blade used for the first cut is reinserted, and the handle rotated toward the septum until it approximates the horizontal position, with a gentle pull the easily-broken-down ethmo-orbital cells are opened. A Wright snare is now introduced with the canula held firmly in the upper limits of the first cut, and the turbinate with attached cell remnants are removed.

A Knight forcep is used to complete the operation, being a convenient and safe instrument for removal of the loosened cells resulting from the earlier steps of the technique. If it seems desirable the Sphenoid Sinus may be opened or its anterior wall removed, as it is plainly visible in the posterior limits of the field.

Being careful to observe that no ragged edges of membrane are remaining in the field to produce undue bleeding, the exposed surfaces are lightly mopped with Tincture Benzoin Compound and the operation is complete.

After the patient has returned to the room, cold compresses are applied to the nose and frequent spraying with Sol. Adrenalin Chloride 1-10,000 is maintained for a few hours. After the third day 10 c.c. of Liq. Petrolati is instilled in nostrils daily with a medicne dropper.

Healing is usually complete within two weeks.

REFERENCE.

1. Greenèeld Sluder. Headaches and Eye Disorders of Nasal Origin.

SOME PRACTICAL OBSERVATIONS ON GALL-BLADDER DISEASE*

C. JEFF MILLER, M. D.,

NEW ORLEANS.

The only way in which the ultimate results of surgical intervention can be rightfully measured is by the patient's own view of the end results. He wishes relief, he wishes to be restored to full working capacity, and provided that result be obtained, the means to him is a matter of little consequence. Much of the discussion, it seems to me, which has raged around the subject of gall-bladder disease in recent years could have been eliminated if this simple point had been born in mind; whether drainage or removal is the better operation theoretically or technically is not

*Read before Mississippi State Medical Association, Biloxi, May 12-14, 1925.

nearly so important as what procedure gives better results for the patient. With this in mind I have investigated 128 recent operations for gall-duct disease in my private work, and the conclusions set forth in this paper are based upon the patient's own views of the end results in 108 of the series.

The limitations of space and time do not permit of a discussion of the physiology and pathology of the gall-bladder, but I would remind you that if we exclude new growths, practically all gall-bladder disease is primarily infectious in character, and that cholecstitis, the inflammatory process, is always preliminary to cholelithiasis, the terminal result, although it in turn may be merely an incident in the myriad pathological changes which may involve the smaller radicals of the bile ducts, the pancreas, or even the cells of the liver itself. All treatment, therefore, should be based upon the general principles which govern bacteriological invasion and infection elsewhere in the body.

From a procedure which in the beginning carried with it so high a mortality that it could be considered only as an emergency, life-saving measure, surgery of the gall-bladder has now evolved to the stage where it may be proposed with comparative safety for early manifestations of the disease, for the recognition of which, however, considerable diagnostic acumen is frequently necessary. The syndrome of gall-bladder disease, particularly in acute cases or in gall-stone colic, is fortunately very definite, and in no other condition is a carefully interpreted history of more value. Our endeavor, however, should be to recognize the early phases of the condition, and I know of no better rehearsal of the inaugural symptoms than is to be found in Sir Berkeley Moynihan's paper of that title. You will recollect his emphasis on the history of persistent digestive disturbances, the fullness, weight and distention in the epigastrum appearing with regularity after meals and practically always after certain articles of diet and relieved by eructation or dismissed instantly by vomiting, the acidity and heartburn, the sense of tightness which if unrelieved by posture or loosening of clothing becomes acutely painful, and finally the typical attacks of pain which make the diagnosis definite. Such a history in whole or in part can be elicited in every case of gall-bladder disease, and to it even the most carefully worked out laboratory methods must always be subsidiary.

Second in importance to a properly taken and interpreted history comes X-ray investigation, though its results have not been as helpful as it was once thought they would be. In detecting stones, for instance, its efficiency naturally increases with the percentage of calcium salts present and a stone composed largely of cholesterin may not show up at all. In the hands of the experienced radiologist, however, the so-called "negative shadows" are full of meaning, and the various shades of gall-bladder opacity, the position of the organ in relation to adjacent structures, and the presence of adhesions, especially about the duodenum, are all of diagnostic value. I might say in passing that the new method recently published by Evarts Graham, of outlining the gall-bladder after the intravenous use of sodium tetraiodophenolphthalein, has apparently given excellent results in his hands, if we are to judge by his report of a 96 per cent incidence of correct diagnosis as confirmed at operation, and if it can be put into general use it will mark a distinct advance in the radiological investigation of the gall-bladder.

Blood chemistry is also of diagnostic value, particularly studies of the cholesterol content. Moynihan has recently reported a series of cases of cholelithiasis in which 88 per cent showed either a hypercholesterolamia or values considerably higher than the normal blood content. But again this is a method only for the experienced laboratory worker and it can never take the place of a detailed history and careful clinical observation.

Medical treatment has a distinct place in vague digestive disturbances if gall-duct involvement is suspected but I can see no justification for its continued employment after a definite diagnosis has been made. Prolonged treatment with duodenal taps, stomach washings, restricted diet, etc, may produce the "degree of clinical silence" so aptly described by Moynihan but it cannot retard a steadily progressing pathology, and a cure by such methods will very frequently be found to coincide with the period of rest which in the very nature of the disease follows some acute manifestation, in exactly the same manner in which gastric or duodenal ulcer is so many times "medically cured" before the ultimate and inevitable operation.

Since surgery, then, is admittedly the logical treatment for gall-bladder disease it is equally logical to assume that the earlier the operation is done the simpler the procedure and the more successful the end results are likely to be, exactly as in the case of an interval and an emergency operation for a diseased appendix. Operation in the pre-calculus stage is desirable whenever possible; the surgical procedure entails a certain inevitable amount of pain and discomfort and nervous shock, but on the other hand the agonies of hepatic colic are not soon forgotten by those who have endured them. Again, as we have already pointed out, long continued infection is bound ultimately to result in an involvement of neighboring structures so that a deferred operation may not be curative or even palliative. And lastly, repeated attacks of severe pain and long-standing infection may so lower the patient's vitality and sap his resistance that any surgical procedure may eventually be a very serious affair.

As a general rule, operation in the acute stage is seldom desirable if the patient can be carried through the attack, although in the presence of urgent symptoms this rule must be disregarded. Surgical procedures can now be carried out with relative safety on patients who even a few years ago were considered hopeless risks because of cardio-renal or other constitutional conditions or the concomitant diseases of advancing years. Rehabilitation of these cases by pre-operative measures such as rest, restricted diet, the administration of intravenous glucose solution, the use of calcium in instances of jaundice, has made many patients safe operative risks who would have died under the methods formerly employed. These measures are, of course, applicable to any debilitated patient, but they are particularly helpful in serious gall-bladder infections, in which they parallel the new safety of surgery of diabetics since the introduction of glucose and insulin.

The storm center of the whole argument in gall-bladder surgery is the question of cholecystectomy versus cholecystostomy and present day statistics show exactly the reverse of the conditions of 10 or 15 years ago, when the latter was the favored procedure. In the hands of a competent surgeon the primary mortality does not differ greatly, though in the hands of the inexperienced man simple drainage is unquestionably the safer procedure. Again there can be no question but that cholecystostomy is the better operation under certain circumstances, as when there is a possibility that some secondary operation such as cholecystduodenostomy may be required at a later date; in long-standing obstruction of the common duct with jaundice, when hemorrhage due to delayed coagulation of the blood may be a serious complication; when the patient's condition is so precarious because of age, the acute nature of the disease or the presence of pus that the simplest procedure is a risk in itself and even the prolongation of the anesthetic is a grave consideration; or when the obesity of the patient or distortion of the anatomical relations would make the radical operation difficult and tedious.

Cholecystectomy, on the other hand, should always be done in the presence of disease of the gall-bladder, as evidenced by loss of normal color and tone, fibrous tissue formation or fat deposits, glandular

changes or the presence of adhesions. In addition to these definite indications of disease there is also to be considered the gall-bladder which has unquestionably produced clinical symptoms in the past but which at the time of operation looks normal. Lampson suggests that such gall-bladders should be removed as a routine, since they certainly harbor bacteria, and that gross evidence of disease is lacking only because the operation is of the interval type. I am rather inclined to agree with him. A gall-bladder which is once infected has notoriously poor powers of recuperation and is always a potential hotbed of bacteria.

Of late years it has been my policy to do cholecystectomy in all cases in which there is no definite contra-indication, and in the series on which this paper is based the ratio is 4 to 1. My final decision is, of course, never made until the peritoneum is opened and the gall-bladder is in my hand, but, other things being equal, cholecystectomy is with me the procedure of choice. Moreover, for the last few years I have not used an abdominal drain after the removal of the gall-bladder as often as I once did, unless serious pathology of the gall-ducts demanded such a procedure. My results, both immediate and ultimate, have been decidedly improved, but I would emphasize that unless the technique is flawless and there has been no soiling of the operative field the omission of drainage cannot be considered.

Except for the general principle that the presence of infection in either area definitely contra-indicates combined operations or even exploration, the question of operation on other organs of the abdominal cavity in combination with gall-bladder surgery should be settled entirely upon the merits of the individual case. If the patient is in good condition and the first operation has been done smoothly and rapidly I can see no reason for not completing the work at a single sitting, if for no other reason than the bad effect the apprehension of a second ordeal is likely to produce on the patient. In the series I am reporting other operations included appendectomy in 53 instances, gastro-enterostomy for pyloric or duodenal ulcer in 2, and pelvic operations in 29 instances, varying in severity from simple curettages and plastic work to complete removal of the uterus and adnexa. There were no untoward results in any instance nor was any convalescence unduly prolonged.

In the series of 108 cases, 19 men and 85 women, the ages ranged from 14 to 73 years, nearly two-thirds of the patients being over 40. Twenty-two cholecystostomies were done and 86 cholecystectomies, a respective incidence of 20.4 and 79.6 per cent. Of the 22 cholecystostomies 15, 68.2 per cent, report complete relief, and 2 more consider themselves cured except for dietary restrictions necessary to avoid flatulence and constipation. Two were relieved for varying periods of time, in one of whom cholecystectomy later gave complete relief. One patient was not relieved at all, and I am mentioning her case in detail because she well illustrates a point I wish to stress, that these patients should be carefully watched after they leave the hospital. She was given the usual routine instructions as to diet, exercise and bowel function, but I am a surgeon, not an internist, therefore I could not attempt to keep in close touch with her and I saw nothing of her for several years. When she consulted me again I found that she weighed more than she did at the time of operation—she then weighed 220, that she led an absolutely sedentary life that she drank practically no water, and that her diet was both unbalanced and excessive. The bad results in this instance need no further analysis.

Of the 86 cholecystectomies, 58, 67.5 per cent, report themselves cured, although in some instances dietary restrictions are necessary to avoid flatulence and constipation. Seventeen, 19.5 per cent, report marked improvement both of symptoms and of general health. Three report temporary improvement for varying periods of time, and 7 report no relief at all. All of the latter were women. Three have continued

under the direction of a gastro-enterologist and have had repeated duodenal drainages, in one instance 72 times. One at the time of operation showed a thickened pancreas and had had her symptoms for 35 years, while another showed a marked glandular involvement and gave a history of digestive disturbances for 10 years. In another instance the poor results are directly attributable to an entire disregard of directions as to diet, exercise and bowel function. In the last case the patient showed a cholangitis and pancreatitis at operation. Cholecystectomy relieved her for 6 months, after which her symptoms recurred with progressive severity; common duct drainage relieved her for another 4 months, since which time she has grown steadily worse. There were 29 cases of cholelithiasis in the entire series.

These results are in no sense scientific. They are merely the patient's own opinion of what was achieved. Some who term themselves cured to my mind belong in the improved classification, others who consider themselves rather badly off present no symptoms at all referable to the gall-bladder, but I am giving you the results as they themselves state them, for that, after all, is the true index of our success or failure.

There were 2 deaths, a mortality for the entire series of 128 cases of 1.6 per cent. One was a woman of 73 with a history of illness extending over a long period of years, on whom cholecystostomy was done during an acute attack because of the urgency of her symptoms. She died of peritonitis on the fifth day after a secondary enterostomy. The other was a man of 45 with carcinoma of the liver, in whom the gall-bladder was anastamosed to the ascending colon as a temporary measure of relief; he died on the third day and perhaps does not properly belong in this series as the condition was not primarily one of gall-bladder disease. This unusually low mortality does not in any way prove that gall-bladder surgery is not inherently serious. These patients were all carefully prepared for operation, drainage was done in several instances in which the more radical operation, although theoretically better, would probably have been a dangerous procedure, and through a series of fortunate chances not a single case developed any post-operative complication.

In conclusion, success in gall-bladder surgery would seem to hinge upon diagnosis of the condition in its early stages, operation as soon as practicable thereafter, careful preparation of the patient beforehand, the selection of the operation according to the needs of the individual patient rather than according to a rigid theory that either drainage or removal is the preferable procedure, and last and perhaps most important, the co-operation of the internist for a long period after the surgeon's work is done in the interests of hygienic living.

THE CONSERVATIVE TREATMENT OF ECLAMPSIA*

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NEW ORLEANS.

The frequency with which eclampsia occurs as a complication of pregnancy is variously estimated. Williams states that it occurs about once in every five hundred labors, but that in maternity hospitals it is encountered in a trifle less than 1% of the cases admitted. McPherson reports a frequency of one in sixty in the wards of the New York Lying-In Hospital, but states that in the out-patient department the incidence is only one in 1075 cases. He notes that the cases of eclampsia are especially common in the early spring, notably in April, and this coincides with our experience. Stroganoff states that the mortality from this disease is about one to each one thousand deaths amongst women in Paris, Berlin, Budapest, and Milan, while in Chicago this proportion is

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1.9, in San Francisco it is 2.9, and in New Orleans it rises to 6.4 among the whites and 3.4 in the colored. In the Charity Hospital of New Orleans during the years 1919-1924, inclusive, there were 97 cases; during this time, 5516 patients were delivered in its wards. Regardless of figures, we all know that it is of common occurrence, and that every physician handling obstetrical patients may at any time be called upon to deal with this rather terrifying complication. The etiology of eclampsia is unknown, but as it is a complication of pregnancy it appears logical to treat it by terminating the pregnancy as soon as possible. This is the theory by which we have been guided in the past, but the results of its application have been far from satisfactory. A maternal mortality of from 20 to 40%, with a fetal death rate of from 40 to 50%, is not a record which we can view with any degree of pride.

Is it not possible that, throughout the world, obstetricians have been treating eclamptic patients too vigorously, in their attempts to relieve them? Let us see what has transpired, and what is now going on in the system of a patient with eclampsia. The history will almost always tell us of a gradually developing toxemia, with headaches, dizziness, ocular disturbances, epigastric pain, and generally edema as the distinguishing features. The blood pressure, which as a rule has not been taken, has been high for several days, and the urine has been scanty and albuminous. In other words, the toxemia has been at work for days or weeks before the crisis of convulsions develops. What do the convulsions signify? The actual, fundamental cause of these siezures is not known; we cannot say that they are due directly to the toxin, or that they are initiated by a secondary toxin which has developed, or that the edema of the brain is responsible. We do know that the development of convulsions signifies an increasing severity of the toxemia, and that the more frequently they occur and the greater the total number, the graver is the prognosis. Whether death is due chiefly to the convulsions and to the changes they occasion, or mainly to the underlying toxemia, is a point concerning which there is some difference of opinion, but it appears logical to conclude that both factors are at work. Certainly the nervous system is seriously affected, and it is questionably whether the infliction of further traumatism, such as is consequent upon operative delivery, is the proper procedure. Stronganoff was the first to raise this question, and to work out a systematic scheme of conservative treatment. His results, substantiated by those of many others, appear to bear out the truth of his contentions. A case of eclampsia may be likened to one of tetanus, and in the latter instance we are all agreed that every possible traumatism is to be avoided. Carrying the analogy further, we may say that in eclampsia, as in tetanus, the treatment of the original focus (i e., the pregnant uterus), is for the moment of secondary importance, our chief concern being the lessening of the toxemia and the control of the convulsions.

However, the authorities are divided into opposing camps, one group advocating radical treatment as soon as possible after the first convulsion, another championing sedative and eliminative measures, and a third claiming that best results are obtained by pursuing a course intermediate between the two extremes. The radical advocates claim, with truth, that the convulsions cease in the great majority of cases soon after the uterus is emptied. They also contend that the earlier this emptying is accomplished, the lower is the mortality rate, both maternal and fetal. But the advocates of conservatism present figures showing a maternal mortality much lower than the best obtained by operative measures, and claim a lower fetal mortality as well. The members of the middle group prefer to individualize their cases, and in the main lean toward the conservative side;

DeLee, however, though in this class, is inclined to prefer operative measures.

Let us investigate these claims a little. Williams, in 85 ante- and intra-partum cases, treated radically, had a material mortality of 24.7%. Ross McPherson, in 1909, reported 250 cases with a maternal mortality of 30.8% and a fetal death rate of 44%. DeLee, in the 1921 edition of his textbook, states that "the mortality of eclampsia is still from 20 to 45% for the mother and 30 to 60% for the child", Stroganoff states that in Great Britain the maternal mortality is 22.5% and the fetal 47.8%. Peterson, in a study of 500 cases treated by Cesarean section by 259 different operators, found that in the cases operated upon prior to 1913 the maternal mortality was 47.9%, but that it dropped to 25.79% after 1913, due to a beter appreciation of the operation and its limitations. In the Charity Hospital, in the six years 1919-1924, inclusive, 62 cases were treated by various operative measures, with 24 maternal deaths, a mortality of 38.8%.

Turning to the records of the advocates of conservatism, we find that Stroganoff, in 1923, reported that in his last 253 cases there were only six deaths, or 2.4%. Of these deaths, three were hopeless when first seen, two patients with mild eclampsia died of pneumonia and septicemia, and one died because no chloral hydrate was obtainable. The fetal mortality was 20.1%; excluding the premature children and those dead on admission, it was 6%. In 1918 he collected from the literature 2208 cases with a maternal mortality of 9.8%, and a fetal death rate 12% lower than that obtained by operative measures. McPherson was converted to conservatism in 1916, and in 1922 reported 890 cases treated in the New York Lying-In Hospital with a maternal mortality of 17.4%; in 104 of these cases the fetal death rate was 25.4%. In his two series, the maternal mortality was thus reduced from 30.8% to 17.4%, and the fetal from 44% to 25.4%. Williams, in 92 ante- and intrapartum cases treated conservatively, reports a maternal mortality of 13%, in contrast to his death rate of 24.7% following radical treatment. He quotes Engelman as reporting a mortality of 26, 13.6, and 6.7%, respectively, depending upon his employment of radical, intermediate, or conservative measures. Fitzgibbon and Solomons report 204 cases treated by the Dublin method, with a mortality of 10.3%.

In considering the statistics of eclampsia, Eden raises the point that the mortality rate varies according to the severity of the case, and lays down the dictum, that a case is severe if any two of the following symptoms are present: (1) Coma; (2) pulse rate above 120; (3) temperature of 103 or higher; (4) blood pressure above 200; (5) more than ten convulsions; (6) enough albumen in the urine to cause it to turn solid on boiling; (7) extensive edema. Stroganoff proposes two additional criteria as to severity, viz., nephritis of long duration, and convulsions recurring four or more times in two hours. Stander, of Johns Hopkins, who recently visited the clinics of Stroganoff in Russia, states that from the records it appears that the majority of the latter's cases are of the mild type, but that even after making all allowances his results challenge our attention.

As noted above, the results obtained by the various radical measures in the wards of the Charity Hospital have been about the same as those reported from similar clinics elsewhere. As is true of the other methods, abdominal Cesarean section has been given a thorough trial. Since 1909 it has been resorted to in 69 cases, with 25 maternal and 14 fetal deaths, giving mortality rates of 36.23% and 20.3%, respectively. As the maternal death rate in Peterson's series was 34.8%, and was still 15% in the milder cases of this series, which were not complicated by potential infection, it appears that this treatment has not lessened the mortality. Williams, in the latest revision of his textbook, condemns the operation unqualifiedly; DeLee, however, still feels that in skilled hands it is at times the treatment of choice. Admit-

ting the reasonableness of this contention, it would seem best to restrict the operation to the occasional primipara, at or near term, in whom labor has not begun, with a long, undilated cervix, and a living child. Even under such conditions, we can hardly hope to reduce the maternal mortality much below 20 or 25%, granting that one might be more fortunate in a few sucessive instances.

As the results obtained by us in the employment of radical measures were by no means satisfactory, we decided to try the conservative method in our service at the Charity Hospital, but our early attempts were not particularly successful, as we adopted at first an intermediate plan of treatment. For the past fifteen months, however, we have followed the conservative method rigidly, with most excellent results. During this time, I have treated eight cases, and at least five others have been cared for on other services. Of these thirteen patients, all the mothers recovered from the eclampsia, but one died subsequently from infection, a most regrettable occurrence, due to some undiscovered slip in our technique. She was a very sick woman, with a profound toxemia; labor was induced with a bag, her pains were slow and inefficient, and much vaginal manipulation was entailed. Of the babies, four were premature and stillborn, two near term were dead on admission, and seven were delivered alive, either spontaneously or by easy forceps operations. During this period of fifteen months, only one other maternal death occurred; this patient was a colored woman, moribund and comatose on admission, who died three hours later. Her baby was saved by a low forceps operation shortly after reaching the hospital. In comparison with our previous record of a maternal mortality of 38.8% in cases treated radically, this is a most satisfactory achievement, and is only equalled by the record of the year 1923, when eight cases were treated along intermediate lines, with no material and five fetal deaths. We are continuing to work along these lines, and are now adhering rather strictly to the Stroganoff plan of treatment, with the expectation of equally good results in the future.

It is essential that a well-thought-out method of treatment be adopted, as halfway measures will prove unsatisfactory. Hence, I may be pardoned for going into details. Stroganoff's directions are as follows:

(1) Absolute quiet, with a minimum of examinations and manipulations.

(2) Morphia, gr. ¼, by hypodermic.

(3) One hour later, Chloral Hydrate, 30 grains, in 100 c.c. of milk by mouth, or in milk and normal salt solution by rectum if unconscious.

(4) Three hours from the beginning of treatment, morphia gr. 1/6 to 1/3, generally ¼, by hypodermic.

(5) Seven hours from beginning of treatment, Chloral Hydrate, gr. 30, by mouth or by rectum, as above.

(6) Thirteen hours from beginning of treatment, Chloral Hydrate, gr. 15 to 30, generally gr. 22.

(7) Twenty-one hours from beginning of treatment, repeat the Chloral Hydrate gr. 15 to 30, generally using 22 grains.

The dosage is increased in severe eclampsia in strong patients, and is diminished in the mild form. At first, chloroform, 10 to 20 minims, may be given by inhalation if convulsions appear imminent. On the second day undelivered patients receive 15 to 22 grains of Chloral Hydrate t. i. d. If there are no convulsions for 14 hours, and the patient is in good condition, the dose may be diminished. If the convulsions recur two or three times, if she has had six or more before admission, or even one in a severe case (see Eden's criteria above), 400 c.c. of blood are removed by venesection. This is not done if delivery is expected within one or two hours. As soon as the patient can be delivered without harm to herself and child, delivery is un-

dertaken, either with forceps, by extraction in breech cases, or, rarely by version. In the absence of contraindications, Stroganoff ruptures the membranes when the os is two fingers dilated in multiparae and three fingers dilated in primiparae. The patient is kept warm, hot tea diluted with milk is given; in case she is unconscious, she receives 1000 c.c. each of milk and normal salt solution by rectum per diem. Oyxgen may be given after the convulsions, and plenty of fresh air is essential. If she is unconscious she is kept chiefly on the right side, and vomited mater, mucus, and blood are sponged from the mouth when necessary. Digitalis is given if the pulse is 110 or over, supplemented at times by camphor or caffeine. Note that Stroganoff does not purge, does not wash the stomach, and does not give enemata or rectal flushes.

In the Dublin method, employed at the Rotunda Hospital, stress is laid upon elimination. Morphine, chloral, venesection, and chloroform are not used, and delivery is effected only when the cervix has become completely dilated. McPherson uses morphia gr. ½ at the outset, and gives gr. ¼ every hour thereafter until the respirations are reduced to eight per minute. He also employs free elimination. In our cases, we administered morphia, gr. ½, at the start, removed 500 to 800 c.c. of blood by venesection, gave 1000 c.c. of 5% glucose (with or without insulin) intravenously, and repeated the morphia in ¼ grain doses every two to four hours, as appeared necessary. In some cases, as much as a grain or a grain and a quarter was given in twelve hours, in addition to sodium bromide and chloral hydrate, sixty and thirty grains, respectively, by rectum every three or four hours. If labor did not develop spontaneously, it was induced by a bag *after* the convulsions had ceased. It has been our conviction, and still is, that induction of labor, or some other method of artificial termination, is indicated at this stage. The *eclamptic* stage is over, at least for the present, but the toxemia persists as long as the patient is pregnant. This is well exemplified by a recent experience of Dr. G. A. Mayer, under whose direction a patient was successfully carried through the eclamptic seizures by this conservative treatment, but labor failed to develop spontaneously. After a wait of two or three days, a bag was introduced, and she had another convulsion during the ensuing labor. There were no further attacks, however, and a living baby was later on delivered by forceps. It has occurred to me that in this quiescent stage delivery in some cases by vaginal or abdominal Cesarean section might be safe and expedient.

The dosages of these sedative drugs recommended by some writers may appear to be unsafe, but it seems that these patients can tolerate amounts that would be toxic to a normal person. For example, a colored patient in another service received during the first ten and one-half hours of her stay in the hospital a total of one grain of morphine, sixty-five grains of chloral hydrate, one hundred and ninety grains of sodium bromide, and three and one-half grains of sodium luminal, together with whiffs of chloroform to control the eight convulsions which she had in spite of the drugs. Her convulsions ceased, and she delivered a living baby eighteen hours later, during which time she received ¾ of a grain of morphine, sixty grains of chloral, and one hundred and sixty grains of sodium bromide for good measure. Another patient, however, who died five hours after admission, received one and one-half grains of morphine during that time. It is possible that the opiate in this dosage contributed to the fatal issue.

To sum up, I can state confidently thatthe conservative method is more efficient than the radical treatment as far as the mother is concerned, and just as safe for the baby. It possesses a great advantage in that it can be employed anywhere by any physician, no matter how handicapped he may be by lack of hospital facilities or by surgical dexterity. I therefore recommend it for your earnest consideration, and feel

sure that, if you employ it properly, your results will be most gratifying.

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DISCUSSION.

Dr. Lucien LeDoux (New Orleans): Doctor King has added evidence in favor of conservatism in eclampsia. Conservatism has long been advocated by Stroganoff, and locally by Doctor C. Jeff Miller, but in spite of these excellent recommendations, up to two years ago we were treating these cases in our service at the Charity Hospital with a minimum of conservatism and a maximum of interference. The plan that we have used follows closely the general outlines given by Doctor King, only that we individualize our cases a little more closely and give a preliminary injection of morphine, one quarter grain, followed quickly afterwards by venesection. If the blood pressure is over 150 we follow Polak's plan of holding 150 cystolic pressure as a margin of safety, and using preferably normal saline instead of glucose solution after venesection. Chloral and Bromides are used together for the synergistic effect—20 grains of the former and 40 of the latter by mouth or rectum, gallon rectum flushes, and a diet exclusively of milk. The purpose of this treatment is essentially one of control. We endeavor to improve the general condition of the mother and spend little or no time in worrying about the fetus. These cases within 24 to 48 or 72 hours, depending upon their severity, will be brought up to the best possible condition and then labor is usually induced and in approximately 60 per cent. of the cases which are not premature, the delivery is spontaneous.

In the past two years my results in 27 cases were as follows: Six cases treated by interference, with 3 maternal deaths and 6 fetal deaths; by conservatism, 21 cases, with 3 maternal deaths and 12 fetal. The fetal deaths appear high, but I would like to point out that many of these cases are in convulsion or in coma, and the toxemia has been of long standing and the fetus has been injured as a result. I wish to add these figures to Doctor King's, and I strongly recommend them to you for your consideration.

It seems then that by careful and intelligent pre-natal care, and the application of conservatism, we can reduce the maternal hazard to a minimum and the result to the fetus, especially regarding mortality, will be placed somewhere between these two.

Finally, I wish to emphasize what Doctor King has said, because we have found that our results by interference are very unsatisfactory, and the results by conservatism hold much promise for the future.

Dr. W. E. Levy (New Orleans): Eclampsia is without doubt the bugbear of the obstetrician. It is really a more serious complication than hemorrhage or infection. I would most heartily subscribe to all that has been brought out by Doctor King as to the efficacy of conservative treatment in eclampsia. Radical treatment is absolutely contra-indicated except in the exceptional case.

One point I wish Doctor King had stressed, not so much as regards treatment, but as regards prognosis, and that is the differentiation between eclampsia and the nephritis of pregnancy. They are two distinct entities. The mother naturally wants to know what are her ultimate chances of bearing children with freedom from danger. This means very careful tests. One is the blood chemistry test, which is practically negative in eclampsia, but which shows nitrogen retention in nephritis. It means the distatic activity will show an increase above the normal point in eclampsia and very low in nephritis. It also means the differentiation between serum globulin and serum albumen, the serum globulin being increased in the eclamptic type, and the serum albumin being increased in the nephritic. The phenolsulphophthalein test in the average eclampsic is practically normal, whereas in the nephritic type we find it lowered. What is the prognosis then? A woman usually has eclampsia with her first baby, but it very seldom repeats. The repeating type is really nephritic and the succeeding pregnancies of that woman should be watched very carefully.

The energetic treatment of eclampsia is absolutely contra-indicated for two other reasons. These patients are very poor subjects as regards infection. If we manipulate them either from below, or from above by Cesarian section, they are prone to develop an infection and die as a result. Furthermore, they are bad subjects on account of shock.

Without doubt the best treatment of eclampsia is its prevention and very often careful pre-natal work will obviate the necessity of treating eclampsia. I like to differentiate between the pre-eclampsic and the eclampsic. We treat the pre-eclampsic and the treatment is one of elimination, low protein diet, rest, and so forth.

Where we see fit to bring on labor, we usually use the medical induction of labor with castor oil,

quinine and pituitrin. If we fail we have lost nothing. All cases are given the expectant treatment first. When Doctor Hirst was here, in discussing eclampsia, he said that those cases which are given expectant treatment are in better shape to stand forcible measures should the necessity for them arise. The mortality will surely be lowered by stricter adherence to the expectant line. Further, the fact that the child is out of the uterus does not means that the danger of convulsions from eclampsia is past. We had one cast of post partum eclampsia four days after delivery, showing that emptying the uterus does not remove the danger of eclampsia.

Dr. A. A. Herold (Shreveport): While we are all deeply grateful to Doctor King for bringing this matter again to our attention, I simply rise to call attention to the fact that there is nothing new under the sun. When I was an interene in Charity Hospital 20 years ago accouchement force was the invariable rule, so that I thought there was no other procedure justified, until my attention was called to Dr. Whitridge Williams' book, wherein, even at that time, he stated that, as a general proposition, in these cases, we should ignore the pregnancy and treat the eclampsia.

Dr. Jacob W. Newman (New Orleans): The underlying cause of the Toxemia of Pregnancy is, as you know, still an unsolved problem. It is indeed most unfortunate that our entire line of treatment today is purely empirical. Although the results of thousands of blood examinations have been reported showing conclusively that we are not dealing with an acidosis, our whole routine treatment is still founded upon an existing aciodss as evidenced by the use of aikaline and glucose solutions. We suspect, and the therapeutic tests have almost convinced us, that eclampsia is invariably accompanied by endocrine changes, but, here too, we unfortunately have no way of demonstrating the presence or lack of endocrines in the blood current. We have unquestionably achieved somewhat favorable results with the use of endocrines in the pre-eclamptic stage, but these results are far from satisfactory. We are obtaining much better results along this line of treatment today, because we have realized that we must deal with each case individually and not set up any hard and fast rules for the treatment of all cases alike.

We must from a study of the individual case decide whether we are dealing with the individual, where the supply of endocrines is nearly totally lacking and therefore require large doses to replace the lack of same; or are we dealing with the individual, where the glands are functioning, but not secreting the amount of substance required, and all that is needed in this case would be minute doses of the glandular tissues for the purpose of stimulating these glands and not to supply internal secretion for those glands that have ceased to function.

A careful study of the condition of hypertension and its sequelae especially in Para-Thyroidectomized dogs (Barker, Baltimore) convinces me that we are dealing with a similar condition as exists in pre-eclamptic women. Favorable results have been achieved in these experimental cases from the use of Para-Thyroid extract and Calcium. There is no doubt in my mind that the good results achieved in these cases have been due to the fact that Calcium Metabolism has been stimulated. I have searched the literature diligently to find out whether any cases are recorded where Calcium alone has been used in these cases. I failed to find any references and am therefore bringing this matter before you at this time for two purposes. First, to acquaint you with the results achieved, and secondly, to solicit your cooperation in experimenting along these lines. If the principal function of the para-thyroid gland is to stimulate calcium metabolism, why should it be necessary to attempt to stimulate the parathyroid when the same end results can be achieved by direct calcium administration?

We therefore treat our cases of pre-eclampsia today in the following manner: Every case with blood pressure above 130 is given 10 grains of Lactate of Calcium, T. I. D. If the blood pressure is very high, *i. e.*, above 160, we give 20 grains of chloride of calcium intravenously. The dosage and method of administering same is varied according to the results produced within the first few days. Up to date we have treated 31 cases with blood pressure ranging from 140 to 220 and in only one case have we been unable to relieve the condition, and this was because of an ignorant negress, who has failed to co-operate with us on previous occasions. I have been unfortunate enough to treat a large number of cases of Eclampsia and I have only seen one case where the patient was treated so successfully that she was allowed to carry for an entire fortnight following the convulsions; this case I saw last month and she was treated with Calcium and no other medication. Our results, of course, cannot be taken as final. The number of cases handled so far is too small, nor have our blood examinations been sufficiently conclusive.

I feel that in the treatment of such a serious condition as Eclampsia we cannot afford to lose any time before accepting reasonable suggestions, the employment of which will only tend to rid us of this dreadful menace. I bespeak for this method of treatment your co-operation and welcome any suggestions, favorable or unfavorable.

Dr. Joseph S. Hebert (New Orleans): I wish to congratulate Doctor King on the positive stand he has taken in the treatment of eclampsia at Charity Hospital. We are glad to encourage him in his further work. For those of us who read the American Journal of Obstetrics and Gynecology, we must certainly have been convinced that the treatment of eclampsia has not shifted from radicalism to absolute conservatism. For detailed information on the subject, I would suggest that the last four or five issues of the above named Journal be procured. We must remember that eclampsia has been called the disease of theories, and if we look back as far as Hippocrates, we find that he mentioned convulsions in the pregnant woman. He knew that these women had headaches, they were tired and there was a tendency to sleep. I would like to emphasize the one outstanding fact in the disease and that is that regardless of the treatment pursued the mortality rate in the mother has remained around 20 percent.

With the exception of a few cases when a Cesarian Section is indicated, I believe every eclamptic should be given the benefit of such a treatment as outlined by Doctor King.

Dr. E. L. King (closing): As you will note in the paper, the author was somewhat positive on the question of venesection. It is possible that the employment of morphine and chloral, according to Stroganoff, will control the majority of cases, but I believe we have gotten very striking results from venesection. It is a perfectly simple proposition, particularly if the blood pressure is high. Williams in his last edition states that he bleeds until the blood pressure drops to 100 systolic, or until he has taken out 1,000 c.c. of blood. That is radical, because we have observed that in some cases after the bleeding stops the blood pressure keeps on dropping, so we stop at 130. Possibly in handling cases in private work you might eliminate the venesection, although it is perfectly simple.

The cases of fetal death are manifold. Many are premature, and many die from toxemia, even before the uterus is emptied. Some of course would be lost by operative delivery.

I did not go into the differentiation between eclampsia and nephritis because this is aside from the question, but I would say that the presence of high blood pressure and a persistent albuminuria more than three weeks after the patient has recovered, would point to a nephritic type rather than an eclamptic, and in the nephritic type the toxemia is liable to develop in subsequent pregnancies. We have a patient at the hospital now who had toxemia a year ago after labor was induced; and she came back pregnant again, and we found it necessary to induce labor yesterday. I believe that case is nephritic rather than pre-eclamptic. The men at Hopkins bring out the fact that many of these cases are found a year or more later to have definite chronic nephritic symptoms.

Prophylactis, of course, lies in taking better care of the patient. One patient had been seen every two weeks in a clinic. She developed eclampsia 10 days after her last visit although her blood pressure and urine were found to be normal at this visit. We insits in private and clinic work on seeing these patients every two weeks until the seventh month, and after that every week. I have seen eclampsia develop between Thursday and Sunday. We will get better results if we have a blood pressure and urine examination every week in the last two months of pregnancy.

In regard to the endocrines, that subject of course is as yet an undetermined question. We know nothing about the cause of eclampsia, except that it is a toxemia of pregnancy. The calcium metabolism will have to be determined by careful chemical study, and if it is a calcium deficiency, why do not men and non-pregnant women have it?

THE CHRONIC APPENDIX.*

CHAS. T. CHAMBERLAIN, M. D.

NATCHEZ, MISS.

Much has been written on this subject and I fear it may be considered time worn. There are, however, some interesting points that may be brought out and I believe it well worth our while to consider these points.

Is there such a disease entity as chronic appendicitis? There is, without doubt, a chronic form of appendicitis, and there are chronc types of appendicitis which apparently have never passed through an acute stage and which either continue indefinitely in the chronic form or finally, through faulty drainage and augmentation of bacterial agents with lessened resistance, develop the phenomena of acute infection. It is possible, however, that some of these apparently purely chronic forms result

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from light clinically overlooked acute attacks, especially during early childhood.

For some years, I was of the opinion that chronic appendicitis "per se," did not exist; that all chronic appendicitis were the result of previous acute attacks. My experience in recent years and more especially in the last few months, has caused me to change my opinion. Few, indeed, will subscribe to the statement that chronic appendicitis does not exist at all. The element of danger lies in the contention that chronic appendicitis is rare, that it is a non-surgical condition, and that normal appendices are being removed by surgeons everywhere in great numbers.

Naturally, sensible surgery in chronic appendicitis presupposes intelligent diagnosis and careful exclusion of pyelitis, kidney or ureteral lesions, tuberculosis, infections of the reproductive organs, neoplasms and neurasthenia. In establishing a diagnosis of chronic appendicitis, it is best to take up the subjects in sequence:

(1st) The congenital or embryonic aspect;
(2nd) The Roentgenologic aspect;
(3rd) The clinical or physical findings.

(1st) As is well known, a common site of congenital defunctionalizing adhesions is about the caecum. Up to the fourth month of embryonic life, this, like other parts of the large intestine, hangs by an ample meso-colon. Subsequently, however, this mobility becomes lost owing to the fusion between the outer lamina of the meso-colon and the neighboring mural peritoneum. This fusion takes place in varying degrees. After normal fusion the mural serosa becomes continuous with the tunica serosa of the ascending colon. The fused layers behind the colon disappear as such and the posterior wall of the colon no longer has a peritoneal covering. Instances of retro-caecal and retro-peritoneal appendices can be rationally explained by assuming that before fusion occurs the appendix becomes caught between the coalescing peritoneal surfaces. In this manner a true congenital retro-peritoneal position is developed. The appendix is buried under a membrane made by adhesion of smaller folds about the ileo-caecal region. Such a lodgment of the appendix may clearly lead to serious and intractable disturbance of colon functions, and moreover, sectioning would perhaps reveal little or no pathology in its walls.

(2nd) The Roentgenologic Aspect: This we may consider briefly as follows: Let me say first, however, that it is needless to state that roentgenology is never wise and rarely necessary in acute appendicitis.

(A) Congenital anomalies in position such as transposition of viscera and failure of complete rotation of the caecum when the demonstration of anomalous position will be an aid in diagnosis.

(B) Data obtainable from observation of the visualized appendix. Unfortunately, this does not occur in every instance and is better obtainable with a bismuth or barium meal than with an enema. At first visualization was regarded as evidence of disease, but this view was soon discarded. The study of the visualized appendix must be mainly fluoroscopic. The diagnosis of disease is based on many appearances. Adhesions to caecum, pelvic colon, ilium, or other structures. The emptying time of a visualized appendix is an important consideration. Another important observation is the relation of the visualized appendix to pain on pressure.

(C) Abnormal appearances in other structures suggesting appendiceal origin when the appendix is not visualized. The most important finding is the presence of adhesion especially in connection with the terminal ilium. With the absence of pelvic inflammatory disease, the appendix is probably the offending organ. Definite pylorospasm is an evidence of appendiceal trouble. In a paper before this association two years ago, I called attention to pyloro-spasm caused by the chronic appendices.

(3rd) Clinical or Physical Findings: In an article published in "The Practi-

tioner," 1922, one author states his conclusions as follows: "In the interest of surgeons and patients, the diagnosis of chronic inflammations of the appendix as a condition requiring operation should be abandoned." With this dictum I do not agree. Pain as a symptom in appendicitis is found in a majority of cases in the right iliac fossa, but it is not constant in that location. In chronic latent appendicitis, it may be absent. When present, the local pain changes its position, character and time of appearance. The initial pain is usually paroxysmal or cramp like and referred to the epigastrum. If pyloro-spasm exists, nausea and vomiting ensues. Chronic recurrent appendicitis has a pain referred to the epigastric region due to reflex pylorospasm. Existing appendicitis may not be diagnosed by a mere pain in the right lower quadrant since pain in this region may occur as in lobar pneumonia, calculus in, or stricture of the ureter and pelvic inflammation. A certain number of cases characterized by transient tenderness and pain in the appendiceal region may, by absence of other signs and symptoms of appendicitis, occur sometimes in the course of some infectious disease such as acute rheumatism and tonsilitis. These unquestionably are due to toxic substances in the blood stream which stimulate and irritates the nerves of the appendix. The term appendicodynia may be used to indicate this group. Where the history and physical findings are not typical, the diagnosis is made by exclusion plus direct evidence of diseased appendix. It is in neurotic cases that our failures, both in diagnosis and the giving of relief, are chiefly found. In neurotic patients complaining of vague pains in right lower quadrant, the diagnosis of chronic appendicitis may often be made when it is not present. Operations on such patients are very likely to disappoint in the amount of improvement, and they may fail to receive any relief whatever. Neurotics, especially those with colitis or visceroptosis, should not be advised operation except after extra care and consideration. After careful examination, a diagnosis of chronic appendicitis is arrived at, a cure may be accomplished in ninety-five percent of your cases. Deaver goes as high as ninety-nine per cent. Chronic appendicitis is as typical as any other abdominal affection. Therefore, neither pain nor tenderness, nausea or vomiting, fever or leucocytosis are to be considered as pathognomonic symptoms, but the discrimination of these fundamental symptoms and signs and the comprehension of their development are sufficient evidence to warrant a positive diagnosis and surgical treatment. After a carefully made diagnosis, it is surely unwise to attach too much value to the view held by some that in lower right sided pain, the appendix as a casual factor stands very low in point of frequency. For the appendix can give rise to a serious train of symptoms through mal-position, adhesions, etcetera, without in itself being the seat of active inflammation. The cautious surgeon will continue to find, after careful differential diagnosis, chronic appendicitis is a rather common condition, whereas, the unscrupulous may continue to remove them needlessly.

DISCUSSION.

Dr. J. S. Ullman (Natchez): Doctor Chamberlain's paper has covered this subject thoroughly and it hardly seems necessary to emphasize any point or to offer any other argument in support of his thesis. It is true that the removal of the so-called chronic appendix in the past has been abused. We are all familiar with the old story of the young surgeon who asked an older surgeon what he operated upon a certain patient for, and the older surgeon replied, "$300," but the young man said, "What did he have?" And the older man replied again, "$300."

Seriously speaking, I do not think there can be any doubt whatsoever of the existence of many a chronic appendix. In days gone by when it was considered good practice to wait for the interval operation, what was the pathological condition existing in that appendix after the acute inflammatory symptoms had subsided, if it was not a chronic inflammation of a mucous membrane? We know we have chornic conditions existing in the mucous membrane of other parts of the body, and if we have more routine pathological examinations of the removed appendices, we would find

enough evidence to refute the contention that there is no such thing as chronic appendix. Another point that is interesting if we need any further evidence is this, that many a person who gives all the so-called classical symptoms of gastric or duodenal ulcer have been relieved by the removal of the appendix which did not show acute inflammatory conditions. An examination of some of these appendices that have been removed in these so-called ulcer cases has shown strictures and other definite pathological conditions.

Dr. J. M. Acker (Aberdeen): The object of my discussion of this paper will not be to add anything to it, but to express a few personal thoughts. The way to cure chronic appendicitis in my experience is to make an early diagnosis of it. There may be some cases of chronic appendicitis, as the Doctor says, that have never had any acute attacks. I do not know whether that is so or not, it probably is; but the point I want to make is that I think we doctors have been, and may still be, the cause of a great deal of chronic appendicitis. It used to be the teaching to wait until the cold stage to operate, and I think probably in my part of the state there are some still clinging to that idea, because the majority of cases of appendicitis that I have had have been pus cases. I believe if these cases were diagnosed in the beginning we would have a simple operation to perform, whereas they are sent in later as pus cases. The thing the laity wants is to have the doctor tell them that they have a simple case of appendicitis, but that it may never cause them any further trouble and that it will be perfectly safe to wait. The doctor says he wants to be conservative. My idea of being conservative is to operate immediately. I would rather cut open five or six abdomens and find a normal appendix than to wait 36 hours and cut down and find a belly full of pus. Conservatism means early operation and not too much watchful waiting. Of course the treatment for chronic appendicitis is operation.

Dr. L. B. Hudson (Hattiesburg): Just one point sustaining Doctor Acker; that the treatment of chronic appendicitis is diagnosis. I think very often in chronic appendix cases there will be pain elicited by pressure on the left side of the abdomen opposite the appendix. This was brought out by Dr. Murphy some years ago—that you would not find this in acute attacks, because it is obscrued by the peritoneal reaction in the acute appendix.

Last fall I attended the Tri-State Medical Meeting in Milwaukee, and there Sir Henry Gray, of the Royal Victoria Hospital of Montreal, brought out the point that I have tried several times since and have found it to be correct. Lay the left hand, palm up, on the right side of the abdomen on the left side with the right hand and with the left hand press gently but firmly over the appendix region and then palpate on the left side of the abdomen with the right hand and you will find the patient will say he does not feel pain. Release the left hand and press on the right side and you will have pain at once. I give you this for what it is worth.

Dr. C. A. Sheeley (Gulfport): There are no more city doctors—they are all from the city. But nevertheless, I think appendicitis still remains in those dangerous intra-abdominal conditions that we have, and while all intra-abdominal conditions are extremely difficult to diagnose, it seems to me that if a patient has pain in the belly it becomes the doctor's duty, unless he can hold up his right hand as if it were his brother or his sister—to get that patient into the hospital where an intensive study can be carried on as to what is really causing that pain. If he cannot diagnose the case how can he treat it? If he gives a hypodermic, before he is called back to that patient the appendix may rupture. So with the Fords all over the country and with hospitals in Mississippi within two hours of everybody, it is our duty to get these patients into the hospital where an intensive study can be made of the condition. It is too dangerous to wait and watch a case, and the longer you wait, the more injury the patient is likely to receive.

Dr. Charles T. Chamberlain (closing): I do not know of anything further to say except that I wish to stress the point that in my opinion such a disease entity as chronic appendicitis does exist. Sometimes in opening up abdomens for appendicitis we find some other condition, especially uretural lesions, Hunner's strictures, and so forth, and in neuropaths we are liable to err in that respect. I simply want to stress the fact that in these conditions the proper diagnosis is essential, saving the patient possibly a needless abdominal operation.

UNRECOGNIZED PELLAGRA, A SERIOUS SURGICAL HANDICAP.*

L. B. HUDSON, M. M.

HATTIESBURG, MISS.

In presenting this paper, I realize that I am invading deep water and may fail to put my idea across. I hope no surgeon

*Read before Mississippi State Medical Association, Biloxi, May 12-14, 1925.

within the sound of my voice has stumbled into the same pitfall, but cannot believe it to be true. However, in saying this, I am aware of the fact that such a statement is equivalent to pointing an accusing finger. A drunken man will often think those about him are drunk and that he is the only sober man in the crowd. Perhaps that is my predicament. Suffice it to say, that since 1917, I have lost three patients, all women, in whom I failed to recognize pellagra before I operated, and who died undoubtedly of pellagra, never developed skin manifestattions, and did not give symptoms prior to operation that would lead one to suspect pellagra. I console myself with the thought that they would have succumbed without operation, but I certainly would have shunned them as poor operative risks, had I recognized the cases before operating.

Case No. 1. Mrs. J. H. B., age 28, married 4 years, never been pregnant. For several years had suffered with menstrual cramps, very severe the first day and very scanty flow. Seven years before she had a D. & C. with no improvement. P. I. Began about three months before with backache, leukorrhea, painful menstruation and cramp very painful at menstruation and some headache. She had a sensation of pelvis dragging, was very nervous and had some nausea and vomiting and constipation. During these three months she was bed-ridden most of the time.

Physical examination, made in consultation with Dr. S. S. Turner of Hattiesburg, who had been treating her, showed a spare little woman, weight about 100 (normal) at this about 90. Head, neck, chest, negative; abdomen, pain on deep pressure over both ovaries; somewhat acutely sensitive over McBurney's point. Vaginal examination showed uterus completely retroverted, both ovaries slightly enlarged. Uterus could not be replaced without anesthesia. Cervix small and canal stenosed. After full discussion, operation was advised on account of constipation, backache, headache, dragging sensation in pelvis, leukorrhea, and painful menstruation. Incidentlly pellagra was not considered as she did not evidence the nervous, mental, digestive, mucous membrane and skin manifestations. March 6, 1918, abdomen opened under ether anesthesia. Congested, kinked appendix removed; both ovaries found about twice normal size, both were punctured and left without further disturbance; uterus found in Douglas sac. Abdomen explored and no other pathology found. Uterus suspended by the Baldy-Webster round ligament, shortening operation. For 6 or 8 days she did well, wound healing by first intention. About the eighth day she began to have nausea, vomiting, burning sensation in the region of the stomach, typically red mouth and tongue, vaginitis, undoubted mental and nervous phases of pellagra. These symptoms persisted in spite of the use of balanced diet, tonics, arsenic intravenously, intramuscularly and per orem. She died six weeks later, undoubtedly of pellagra. Not a single sign on the skin.

Case No. 2. Mrs. C. G. M., married, mother of 5 children. P. I. For about a year before operation patient had suffered with headache, backache, dragging pains in pelvis, prolonged menstruation, menorrhagia, persistent leukorrhea, obstinate constipation, some nausea, vomiting and indigestion. At times patient referred to pain in right lower abdomen. Examination: Head, neck, chest all negative. Abdomen, gall-bladder and kidneys negative; pain on deep pressure over McBurney's point, otherwise negative. Vaginal: Large eroded, soft cervix with bilateral laceration, uterus about 2½ or 3 times normal size and very boggy. Diagnosis: Chronic endometritis and metritis, potential malignancy of body of uterus. Patient was admitted to hospital April 9, 1919 and remained in hospital under observation until April 27th, when the abdomen was opened and a supravaginal hysterectomy, with removal of left tube, ovary and appendix, was done. Patient had rather a stormy post-operative convalescence despite the fact that the wound healed by primary union. On May 3rd, 8 days after operation, she began to show marked gastric disturbance, associated with mucous membrane disturbance of mouth, extreme nervousness and apathy for foods. This continued more or less marked until her discharge from the hospital May 14. I continued to treat her at her residence until her death July 6, 1919. About three weeks before she died I called Dr. J. A. Storck, gastroenterologist from New Orleans, and he concurred with me that she showed unmistakable symptoms of pellagra, without skin manifestations.

Case No. 3. Mrs. W. A., age 52, married, mother of 3 children living and well. Had two abortions. Had usual disease of childhood. For several years has been very nervous. Had menopause at 42. Three weeks before my first examination, October 6, 1924, she began to have a yellowish discharge from vagina; a week before it became bloody and continued up to the time of the examination. Vaginal examination showed cauliflower like excrescence on lower lip of cervix, about the size of a five-cent piece. No

infilteration of vaginal wall or adnexa. Other findings negative. Diagnosis: Early carcinoma of cervix uteri. October 13th, hysterectomy and appendectomy was done. Patient did very well until October 15th, when wound had to be opened on account of serum accumulation. A few days later all stitches were removed, as it was realized that free drainage was necessary. Patient never did show a responsive granulation in wound in spite of aggressive measures, tonics, heliotherapy, etc. I realize now that heliotherapy was contra-indicated. December 8th, nearly two months later, wound was pared, under local anesthesia, and stitched. After two weeks these stitches were removed and wound gaped as before. A blood Wasserman was taken, which proved negative. In spite of this January 13th, she was given 0.3gm neosalvarsan, intravenously, and mercury and iodides given by mouth. During this time she showed no response and began developing unmistakable signs of pellagra, viz. red tongue, sore mouth, nervous and mental phases and general picture of pellagra without skin manifestations. Four more intravenous doses of 0.6gm each of neosalvarsan were administered without effect. Patient died February 9, 1925.

A brief reference to the etiology and symptomology of pellagra is proper. While I personally subscribe to the unbalanced ration as the chief etiological factor in the causation of pellagra, I hold no brief for those who differ with me and will dismiss further consideration of the etiology.

Symptomology.

Alimentary—scarlet red tongue, intensely red and sometime excorciated mucous membrane of mouth; patient describes sensation as of burning after drinking coffee too hot.

Gastro-intestinal—hyperchloridia or nervous dyspepsia, frequent heartburn, pain in chest due to esophagitis. Gaseous and acid eructions, nausea and vomiting not infrequent, anorexia sometimes, constipation at first and in late stages diarrhea with excoriations about anus, this due to proctitis.

Genitals—vaginitis in the female is usually present. Women, by the way, being more often affected than men by pellagra.

Nephritis, mild or severe, is claimed by some in over 80% of cases.

Dermatitis, claimed to be present in the hot months, on exposed parts of the body, in well over 80% of all cases, consists of varying degrees of erythema to exfoliating dermatitis. The backs of the hands and lower forearms being usually pathognomonic. Sometimes the back of the neck, elbows and dorsum of feet show the dermal signs.

Mental and nervous, varying from mild hallucinations to grave mental depression or excitation, often requiring asylum treatment.

In a paper by Dr. R. M. Harbin,(1) Rome, Ga., reviewing 500 selected laparotomes from 1050 miscellaneous abdominal operations, occurring in 3050 case records, errors in diagnosis occurred as follows: Appendicitis, 3; gall-bladder disease, 2; tubal pregnancy, 2; tuberculosis of intestines, 2; tuberculosis of spine, 1; Meckel's diverticulum, 1; duo-denal ulcer, 1; acute pancreatitis, 1; perforated typhiod ulcer, 1; carcinoma of liver, 1; cyst of mesentery, 1; pyosalphinx, 1. Not a case of pellagra has been recorded as the cause of death following surgical operation in all the text-books and literature that I have reviewed, and this includes several of the leading medical and surgical journals for three years back. Can it be possible that I am alone in having had this tragic experience?

Since writing this paper, I have read an article in the April 25, 1925, issue of the Journal of the A. M. A., entitled "Pellagra, Secondary to Lesions of the Stomach Interfering with Nutrition," by William L. Bender, San Francisco.(2) This being the most lucid article on this subject, that I have found, as I said, reviewing the journals at my command for over three years back, I feel that in justice to the subject, and to the writer of this article, which appeared three months after I had determined to write on this subject, and after I thought I had completed my paper, I am prompted to quote verbatim the text of this article:

1—S. G. & O., February 1925.
2—Journal A. M. A., April 25, 1925.

"An interesting side light is thrown on the subject of pellagra by the occasional appearance of the disease in patients with faulty food utilization due to some gastro-intestinal lesion.

The observation in the last three years of such cases has prompted this report and a review of the subject. Pellagra developed in one of these patients during a period of jejunal feeding necessitated by deformity of the stomach by a benign ulcer, and in the other two during progressive carcinomatous pyloric obstruction. Only two similar reports have been found in the literature.

Rolph saw a skin eruption, glossitis, pharyngitis and mental symptoms considered typical of pellagra coming on four months before death, in a woman who died after seven months of excessive expectoration, with increasing dysphagia, vomiting and emaciation. Postmortem examination revealed a carcinoma of the stomach, which involved the cardia, and, acting as a valve, mechanically interfered with the passage of food from the esophagus into the stomach. Since the increased expectoration was an early symptom, and possibly one either of pellagra or of the stomach lesion, Rolph was unable to settle the priority of the two diseases. In this connection, however, he mentioned the rarity of pellagra in Canada, where the patient had lived for twenty-four years preceding her illness. This throws the evidence in favor of the priority of the growth, and suggests the nutritional disturbance produced mechanically by it as the cause of skin and nervous system changes of pellagra, which occurred late in the patient's illness. A more convincing report is that of Bryan, whose patient had had symptoms of peptic ulcer for twenty years with increasing vomiting, very little food having been retained for four months, during which he developed the typical dermatitis and stomatitis of pellagra. Operation revealed a carcinoma of the stomach, which was resected and gastroduodenostomy performed. Recovery from gastric symptoms was good, and in two months both the skin and mouth lesions had completely disappeared. Three cases of acute pellagra following operations for suspected gastric ulcer, in two of which 'large ulcers' were found, are mentioned by Graves in discussing a paper by Roberts. Unfortunately he does not mention whether definite symptoms of pellagra preceded the operations, whether the lesions were causing gastric retention, and what the final outcome of the pellagrous symptoms were; so these cases can not be rightfully included in this group.

The paucity of mention of pellagra, in conjunction with lesions of the stomach interfering with the normal passage of food, suggests, in the light of this report, that the condition has been overlooked or disregarded rather than being one of such extreme rarity. In each of these three cases, pellagra developed after the stomach lesion had been seriously interfered with the passage of food for some time. In Case I the disease developed during the course of duodenal feedings with good animal protein content, improved when this was increased, and disappeared on a general diet by mouth. Surgically relieving gastric retention in Case II, and permitting a full diet resulted in improvement of the pellagrous condition, though the patient was dying of cancer. The trial of improving the diet was impossible with patient III, who died two weeks after operation.

These observations seem to be of some significance concerning the etiology of pellagra, which is still unsettled. There are two main opposing views, the infectious and the dietary, of which a good account is given by Wood. In brief, in later years the infection theory has been advocated chiefly by the Robert M. Thompson Pellagra Commission, and the dietary deficiency theory by Goldberger of the Public Health Service and his coworkers, who hold that the cause of pellagra lies in a deficiency in the protein content of the diet. The weight of evidence is decidedly in favor of the latter view.

More recently, Goldberger and Tanner have reported experiments to show that they have narrowed the etiology factor down to an amino-acid deficiency. Exception has been taken to the protein fault theory by Jobling and Arnold, who record experiments to show that pellagra may be the result of absorption from the intestinal tract of photodynamic substances produced by certain fungi when the diet consists largely of carbohydrates. This view would reconcile the infection and faulty diet theories.

An observation remarkably similar to Case I is reported by Goldberger and Tanner. Their patient, on account of prolonged stupor, was fed by tube wholly or partially for months, receiving about 29 gm. of protein daily solely from the milk in the formula. Four days after a modification of diet, which reduced the amount of milk so that the total protein intake fell to 24 gm. (about 0.5 gm. per kilogram of body weight), pellagra appeared and progressed for three weeks, until the diet was increased by the addition of about 45 gm. of milk protein in powder form, after which there was prompt disappearance of the pellagrous symptoms. Patient I, was receiving 55 gm. of animal protein (about 1 gram per kilegram of body weight) preceding the onset of pellagra, a theoretically sufficient amount, and started to improve when this was doubled.

In these three cases of this report, the only apparent cause for pellagra was the interference in nutrition, another piece of evidence in favor of the dietetic origin of the disease.

My conception of a surgeons responsibility is primarily to be of benefit to humanity. If, therefore, I may bring out a discussion, and lay this on the heart of any surgeon present and sound a warning against mistaking or overlooking this terrible disease in our surgical cases, my purpose will not have been in vain.

In conclusion, I apologize for invading the territory of the internist, in one sense of the word, but do so with a clear conscience, for in reporting failures rather than successes, it seems to me that more good may be derived. My advice is to make as careful study of your case as possible, and when considering operation, especially on a nervous woman, rule out pellagra if you can.

DISCUSSION.

Dr. W. W. Crawford (Hattiesburg): I am very much interested in the subject of Doctor Hudson's paper, because I have had some personal experience in pellagra as complicating surgical procedure. I want briefly to call your attention to a case that came under my observation a number of years ago, before we appreciated the significance of threshing out and properly classifying cases with reference to this important complication. A strong, healthy, robust looking woman, well nourished, came into my hospital for pelvic operation. She ran a boarding house and had plenty of good food to eat, which to my mind is a strong point in favor of the infectious theory of pellagra—but I will not open up that question. This woman needed some surgery and I operated. About the fourth or fifth day following the operation she had a saline and developed a diarrhoea. The first day following the administration of the saline I thought the diarrhoea was the result of the saline, but the diarrhoea persisted and two or three days later she developed a typical dermatitis and stomatitis that you see associated with pellagra, and ultimately the wound refused to unite and finally she died an insane woman some two weeks after I operated—a typical fulminating case of pellagra. This is the only case I have ever operated because fortunately she came in those years when we were having so much pellagra, but she certainly was not a case that even though we were looking for it, would be suspicious. That impressed upon me the importance, particularly in dealing with these asthenic types of under nourished women, in many of whom we see pellagra, to very carefully rule it out. We have had frank cases of pellagra come into the hospital with skin lesions and gastro intestinal lesions that under proper care ultimately recovered, and were later operated without any complicating factors. I think Doctor Hudson does well in calling to our attention these important possible complications in connection with this disease.

Dr. L. B. Hudson (closing): Doctor Crawford told me about that patient when I discussed this paper with him some time ago. I hope the message will warn somebody else to stay away from that pitfall.

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OSCAR DOWLING.

Dr. Oscar Dowling, reappointed President of the State Board of Health September 1st, 1925, by Governor Henry L. Fuqua, has served continuously fifteen years in this office.

In 1910 Dr. Dowling was appointed by Honorable J. Y. Sanders, then Governor, to fill the unexpired term, two years of Dr. Harvey Dillon. Governors Hall, Pleasant and Parker, successively as they came into office, reappointed Dr. Dowling whose last term expired August 29th, 1925, when he was promptly reappointed by the present Governor.

Such a long tenure of public office as an executive is unusual in this country especially when the incumbent proves an aggressive and progressive officer. In practice and policy Dr. Dowling has been both.

Health Officers like poets are born, not made. Few medical men are interested in the public aspects of medicine. Their work is with the individual, as specialists, or in fields of research. The publicity which necessarily accompanies public health work is distasteful to them and the antagonism which it arouses thoroughly displeasing.

Dr. Dowling has naturally the health officer's view point. His early training had developed unusual powers of observation and before his appointment he had traveled widely on this continent and in Europe. Some of the countries visited were far ahead of the United States at that time in sanitation and some of them in methods of control of the spread of disease. Having the vision of what a State should be physically, for the protection of the health of its citizens, and what a State could effect in disease prevention and health promotion, Dr. Dowling planned to get Louisiana quickly into line in modern health activities.

Characteristics other than the habit of observation, foresight and power to direct are necessary for the good health officer. Perhaps the most important of these in public health work is fearlessness. Dr. Dowling had the courage of his convictions. Before his appointment as a specialist in eye, ear, nose and throat work, he had an income of more than twice the salary of the State Health Officer. Financially, therefore, he had nothing to lose if his policy proved too aggressive, and "fear" is not in his vocabulary.

Thousands of people, young and old, remember the first tour of the health ex-

hibit cars in 1910-1911 when almost every city, town and village of the State was visited. The exhibits and moving pictures attracted large crowds and after the first few days a welcome awaited the cars in every place. Inspections were a part of the program and Dr. Dowling himself in two years made 2,500. The knowledge gained from these personal visits was invaluable as a basis for needed, effective remedial measures. The health cars were a great success, but it was the idea they represented that made the appeal.

The psychology of the method was clear even to the most illiterate; the message carried was: "You and your child are entitled to pure, clean, wholesome food, to clean surroundings, to clean schools and courthouses. You are responsible through your officials and it is the duty of the State Board of Health to show you what you need."

This program of activities had an immediate educational effect. Mayors and other officials, school children, the baker, the butcher, the candlestick maker, the housewife, the average man and the "highbrow" each saw or heard of the "new show" that had come to town. Louisiana awoke over night to insanitary conditions. Not everyone in the service of the public did all that was required, but he had ever after a new consciousness as to his obligation to offer clean, wholesome food to his customers, or if in other kinds of service, to carry out his obligation as required by the sanitary law.

In 1910 few places outside the largest cities had an adequate public supply of water and of these some were not safe. One of the first things done was to point out the evils of the surface well, the necessity for a public water supply and to show how it might be obtained from a protected spring, a river, or a deep or artesian well. It is a matter of congratulation that in 1925 nearly every community in the State has an adequate supply of safe, potable water.

Through its Bureau of Sanitary Engineering, the Board now examines all public water supplies and reports to the U. S. Public Health Service in Washington on supplies used in interstate traffic. Analysis is made of every public supply and at one time every tank along railroads containing non-portable water was posted as unfit for human consumption. With the laboratory-motor car this work has been again inaugurated and soon public supplies along the highways which are unfit for drinking will be so posted.

In facilities for the disposal of sewage the communities of Louisiana have made almost equal progress. As sanitary disposal of waste and a good water supply are essentials to health protection, we may be considered as having a satisfactory foundation in these two fundamentals.

In 1911, a revised Sanitary Code was issued. Many regulations were added and many made more stringent. Use of the common drinking cup, the roller towel, insanitary methods of barber shops and of food producers and vendors of many food products were put under ban. Restricting regulations concerning the sale of habit forming drugs and the patent cure-all were among the many changes. The Code was again revised in 1923 and since then has been further amended. The amendments or additional regulations are significant of the public demands. For example, dairy cows must now be tuberculin tested—a few years ago this was thought impossible; methods of handling milk must be sanitary; oyster shucking plants must meet sanitary requirements in the handling and shipping of the product; bottling plants are regularly inspected and summarily closed if the requirements for a safe drink, properly handled, are not met. The public is beginning to understand its health rights.

The Bureau of Vital Statistics of the Louisiana State Board of Health was formally organized in May, 1911, by the adoption of the Model Vital Statistic Bill, effective more or less in eighteen states, with such

modifications as would make the working of the Bill practicable in Louisiana. The first report of the State Bureau of Vital Statistics covering the period from June 1, 1911 to January 1, 1912 including the reports of New Orleans and Shreveport, shows 6,541 births (5,200 New Orleans) and 5,222 deaths. In 1924 the Board of Health recorded for the State 24,884 deaths (death rate 1918, 17.1; 1924, 13.3). Births in 1924 numbered 43,117. In 1911 the personnel consisted of the State Registrar and now there is a Registrar, a Chief Clerk and twelve assistants. Louisiana was accepted by the U. S. Bureau of the Census into the Registration Area for deaths in November, 1918, and it is thought will receive recognition for births within a short time.

Up to 1914 few reports of communicable diseases were made to the State Board of Health. On January 1, 1914, a favorable ruling by the U. S. Public Health Service became effective permitting the Epidemiological Bureau of the State Board to frank cards and letters to physicians. Almost immediately over 90,000 were mailed to physicians and newspapers. In 1914, 291 physicians reported 1660 cases; in 1924, 27,843 cases were reported. While the expansion of this division is clear from these figures, the Bureau is yet without an expert director and sufficient office force to gather compile data in accordance with modern epidemiological methods.

The laboratory facilities have been increased, there being now in addition to the central bacteriological laboratory in New Orleans, three district laboratories. The total specimens examined in 1910 and 1911 numbered 7,328; in 1924 the total numbered 35,842. In 1910-1911, 1,264 analyses were made in the chemical laboratory; in 1924, 5,056.

Dr. Dowling recognized from the beginning of his administration the importance of work in child hygiene. Definite activities were planned for the instruction of children in the schools and the examination of school children where communities would give assistance. As a demonstration the children of the schools of Jefferson Davis and E. Baton Rouge Parishes were visited and children examined by a physician representative of the Board. This gave impetus to local efforts and in a number of communities this work was begun. A systematic educational program was carried on through the Monthly Bulletin which is issued to every school child in Louisiana. With the aid of the Maternity and Infancy fund in 1924 it was possible to employ a force of physicians, nurses and dentists for work with infants, children of the preschool and school age and among registrars and midwives. The report of this division from September 1, 1924 to September 1, 1925, shows that 22,168 children were examined and 2,028 children received dental care.

One of the latest and most effective means of assistance offered by the Board of Health is the furnishing of free biologicals on request of physicians. Anti-typhoid vaccine, diphtheria antitoxin and in limited quantities rabies treatments, immunization vaccine for scarlet fever and smallpox vaccine are supplied. Thousands of persons have availed themselves of the opportunity offered and have been immunized against smallpox and typhoid fever.

The success of the Army and the U. S. Public Health Service in controlling malaria at the camps during the world war promoted an interest in malaria control on the part of civilian communities. Realizing this the State Board of Health with the U. S. Public Health Service in the past few years has furnished twenty communities advice and assistance including surveys, cost estimates and supervision. The work is still in progress in a number of these places, while in some mosquitoes have been practically eradicated. With the co-operation of Mississippi, Alabama and United States Federal authorities, it is believed that mosquito control is possible over large sections of the Gulf Coast, and if this should be accomplished the South will be a veritable paradise.

The policy of the State Board during these years has been always to place the responsibility on the local unit—parish, city, town or village as the case may be—and to give assistance only when the facilities afforded by the individual unit are inadequate.

The organization of local health boards with adequate funds has been stressed throughout the years. A few of the citizens of Louisiana have realized the full meaning and need of this form of health service. There are now ten parishes organized for local health work with a full time director and assistants. These units are jointly financed by the parish contributing one-half of the budget, and the International Health Board and State Board of Health each one-fourth. The program of the health director includes all of the activities needed for the control of the spread of communicable diseases and the promotion of the health of the people of the parish. The stimulus given to local health work by these parishes is marked and the prospect for the organization of a much larger number is excellent.

Dr. Dowling has given the State a business administration. In his first biennial report to Governor J. Y. Sanders, he says: "That the people should know how public money is spent is wise and proper; that they should scrutinize carefully financial statements is a civic duty; that officials should be held to a strict account for public money expended is civic economy. When the mutual obligations of these two, the citizen who votes the tax and the officer who expends it, are more universally understood there will not be opposition to appropriations for necessary improvements for public good. In any department of the State where the interests of the people are vitally involved, and there is an insufficient amount of money to carry on all phases of the work, there must be a differentiation of values and an assignment of specific duties to efficient and conscientious associates and employees, together with the requirement of frequent and explicit reports from them, in order that there may be adequate returns for money expended. This has been the working principle of the financial policy of the Board during this administration."

Dr. Dowling's conception of the service which the Board of Health should render is set forth clearly also in his first biennial report: "Modern administrative health work is to-day the most progressive of all sociological efforts. Its scope is not limited. Removal of sanitary defects, prevention of transmissable maladies, elimination of endemic and germ diseases, development of the science of eugenics, and building of a vigorous citizenship, with the evolution of a social and physical science of health, are all necessary elements of its aim."

Dr. Dowling has made a fearless, courageous fight. He has labored untiringly to bring about conditions conductive to the protection and promotion of the health of all the citizens of the State; he has convinced the public against its will in many instances as to the remedial means imperative for the welfare of all; he has helped to convince the outside world that Louisiana has illimitable natural resources, that the climate is excellent, the environment most beautiful and that Louisiana is as heathful as any section of the civilized world.

Dr. Dowling is recognized as ranking with the most progressive State Health Officers of the United States and he is known internationally as one of the foremost men of this country in modern health activities. One who is critical of governmental affairs and who knows of the administration in the various departments of the State for many years pays tribute to Dr. Dowling's good sense and good judgment in the statement that in the larger aspects of the policy of health administration in fifteen years results have proved his rulings right and just.

Louisiana is to be congratulated that this fearless health officer has been given his commission for another term of service.

NEWS AND COMMENT

DEPARTMENT EDITORS.

Lucien A. LeDoux, M. D., Louisiana.

J. S. Ullman, M. D., Mississippi.

LOUISIANA.

"Every man owes some of his time to the upbuilding of the profession to which he belongs."
—Theodore Roosevelt.

BULLETIN OF THE ORLEANS PARISH MEDICAL SOCIETY.

As the Society is in Vacation there was one meeting of the Board of Directors, August 2rd.

The following Doctors have been elected to active membership: Drs. Ruth Aleman, T. W. Breaux, D. C. Browne, E. B. Gill, G. R. Herrmann, Earl Hyman.

Dr. R. A. Corbin and Dr. J. M. Hoffman have been dropped on account of removal from Orleans Parish.

The following applications for interne membership are pending: Dr. M. W. Miller and Dr. S. B. McNair.

The following application for reinstatement is pending: Dr. E. F. Salerno.

The membership to date is 467.

Schedule of meetings up to December 31st, 1925.
Monday, September 28th, Clinical Meeting.
Monday, October 5th, Board Meeting.
Monday, October 12th, Quarterly Meeting.
Monday, October 26th, Scientific Meeting.
Monday, November 2nd, Board Meeting.
Monday, November 9th, Scientific Meeting and election of Delegates to Louisiana State Medical Society.
Monday, November 23rd, Scientific Meeting and Nomination of Officers for 1926.
Monday, December 7th, Board Meeting.
Monday, December 14th, Scientific Meeting.
Monday, December 28th, Scientific Meeting.

The Committee appointed by the Board of Directors to arrange for the pre-convention clinics is composed of the following members: Dr. Isidore Cohn, Touro Infirmary; Dr. R. C. Lynch, Eye, Ear, Nose and Throat Hospital; Dr. E. J. Richard, Presbyterian Hospital; Dr. H. W. Kostmayer, at large; and the Secretary, Dr. Lucien LeDoux.

Members must notify this office promptly of any change in address.

A request is also made that members, if possible, pay their dues up to January 1st. This will aid materially the work in the office.

SOUTHERN MEDICAL RESERVATIONS.

A special Pullman will be attached to the Sunset Limited, Southern Pacific Lines, leaving New Orleans for the Dallas Meeting, November 8th at 12:10 noon. A card is in the office and reservations are being made.

Members of the Society planning on attending this meeting should file their request for space as soon as possible.

The round-trip fare to Dallas will be $28.77. The Pullman fare, upper berth, $5.10; lower berth $6.38. Call Miss Maier our Assistant Secretary-Treasurer who will attend to your needs.

MONTHLY BULLETIN OF THE SHREVEPORT MEDICAL SOCIETY,

SEPTEMBER, 1925.

September Scientific Program.

Drs. Knighton and Gowen, Report on Inter-State Post-Graduate Assembly Clinic Tour.

Charity Hospital, July 7, 1925.

The regular monthly meeting of the Shreveport Medical Society was called to order by President Sanderson. Minutes of the last meeting were read and approved.

Scientific Program.

Dr. Douglas gave an interesting report of his recent trip to Rochester. Discussion by Drs. Ragan, Sanderson, Cassity and Gilmer.

Clinical Cases.

Dr. Cassity reported a case simulating swamp fever. Dr. W. S. Kerlin reported a case of typical typhoid fever. Discussion by Drs. Heath and Bodenheimer. Dr. Barrow and Dr. Garret reported further on a thoracic tumor reported last time, the condition proving post-operative to be sarcoma. Dr. Barrow also showed three plates illustrating calcified ovaries.

Unfinished Business.

Dr. Gorton of the entertainment committee asked for discussion as to whether the society wishes a dinner with a dance or a dinner without a dance. Dr. Garret suggested getting certain negro entertainers. Dr. Bodenheimer made a motion that the Society favor Dr. Garret's idea of entertainers. Discussion by Drs. Gorton, Ragan. Dr. Douglas made a motion that Dr. Bodenheimer's motion be tabled.

Dr. Garret made a motion, which was seconded and passed, that the Society have a dinner with-

out a dance. The place, time and kind of meeting for August to be left to the entertainment committee.

On motion the Society adjourned.

August 12, 1925.

The annual social meeting of the Shreveport Medical Society was held on the Youree Roof starting at nine P. M. Fifty-four members and forty-three guests were present. During supper and until about ten dancing was enjoyed by most of those present. The entertainment which followed was by local talent and was part of that put on for the American Legion convention which was held here last week.

Speech making was tabooed. At the request of the Rotary Club, Dr. Abramson called attention to and asked for the co-operation of the physicians in helping to make No Traffic Violation Week a success.

Most, if not all, of those present had a good time and the Committee, Drs. L. M. Gorton, Rigby and Galloway are to be congratulated in arranging and carrying through an evening which pleased such a large percentage of the members of our Society, representing as it does such a diversity of tastes and ideas.

R. T. LUCAS, Secretary.

Physicians, contemplating moving their offices, are required by law to furnish the Narcotic Division of the Internal Revenue Office with their new address. Failure to do so subjects the offender to a severe penalty.

It is not too soon to prepare to combat certain legislation which will be introduced at the next session of the Legislature.

Dr. W. H. Seemann, of the Louisiana State Board of Health, is making a tour of inspection of the branch laboratories of the Louisiana State Board of Health.

He will visit the cities of Lake Charles, Shreveport and Monroe.

THE SOUTHERN MEDICAL ASSOCIATION MEETING.

The various committees appointed in connection with the meeting of the Southern Medical Association in Dallas, November 9th, 1925, report very satisfactory progress.

It is especially gratifying to know that the hotel committee has already succeeded in having reserved for guests more than 1600 rooms in the leading and best hotels of Dallas. This insures that no matter how great the attendance, each one will be comfortably and suitably provided with proper hotel accommodations. This settles a question which has not concerned the doctors of Dallas who are acquainted with local facilities, but which has been raised by prospective visitors.

For the first time in its history, the Association will have all its activities housed in one building. The new educational building of the First Baptist Church on the corner of St. Paul and San Jacinto streets will be completed long before November and will have a sufficient number of assembly halls for the various section meetings. The large auditorium with its splendid acoustics gives ample room for all general sessions, and the basement floor, easily accessible, will give more than enough room for all exhibits, commercial and scientific.

In connection with the Association's meeting in November, clinics in all branches will be conducted in all of Dallas' splendid hospitals, which contribute largely to its rank as a medical center of the Southwest. The bed capacity in the larger hospitals alone is in excess of 1,200. Over $8,000,000 has been invested in the hospital facilities; below is given some data on the different institutions located in the city.

We note with a great deal of interest the advertisements appearing in several of the popular magazines in the United States containing a warning against fake advertising cures.

The Metropolitan Life Insurance Company is to be commended upon their activity in this regard.

This simply represents another progressive step taken by the Metropolitan Life Insurance Company in aiding the public and assisting the Medical Profession in displaying the havoc and worthliness of these "fake cures."

The meeting of the American College of Radiology and Physiotherapy will be held on October 19, 20, 21, 22, 1925, in Chicago, at the Hotel LaSalle.

AMERICAN BOARD OF OTOLARYNGOLOGY.

The next examination given by the American Board of Otolaryngology will be held at the Cook County Hospital, Chicago, on October 19th, 1925. Application should be made to the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

UNITED STATES CIVIL SERVICE EXAMINATIONS.

Laboratorian (Bacteriology).
Assistant Laboratorian (Bacteriology).
Laboratorian (Roentgenology).
Assistant Laboratorian (Roentgenology).

Applications will be rated as received until November 30, 1925.

The United States Civil Service Commission announces open competitive examinations under the above titles. Vacancies in the Public Health Ser-

vice or in the Veterans' Bureau throughout the Tenth United States Civil Service District, comprising the States of Louisiana and Texas, at the salaries indicated, and in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from these examinations, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. Vacancies now exist in these positions as follows: Dallas, Texas, Veterans' Bureau, Regional Office, Assistant Laboratorian in Bacteriology; New Orleans, La., Veterans' Hospital, Laboratorian in Roentgenology, also Assistant Laboratorian in Bacteriology.

Applicants should at once apply for Form 2374, stating the exact title of the examination desired, to the Secretary, U. S. Civil Service Board, at the post office or customhouse in any city, or to the Secretary, Tenth Civil Service District, Customhouse, New Orleans, La. Applications should be properly executed, including the medical certificates, and filed with the District Secretary at New Orleans without delay.

The social session of Shreveport Medical Society was held on the roof of the Hotel Youree on August 11th, under auspices of the entertainment committee; there was a large attendance of doctors and their wives, who enjoyed the repast, dancing and fun making.

On the second annual interchange of program, between Shreveport and Ouachita Parish Medical societies, Drs. T. P. Lloyd, W. S. Kerlin, A. P. Crain, C. P. Rutledge and A. A. Herold acted in the fraternal roles for the Shreveport Society at Monroe on September 2nd. The addresses were well received and thoroughly discussed; as usual, the Ouachita men showed themselves as hospitable hosts, ushering in the meeting with a bountiful dinner, served by the Sisters of St. Francis Sanitarium.

The North Louisiana Sanitarium celebrated its final anniversary in its new building, with a watermelon party on the roof, on July 31st. All the doctors of the resident and visiting staffs, together with their ladies, were invited to participate. The refreshments and talks were highly enjoyed and many were the earnest good wishes for continued success of this institution.

Died, suddenly, at Shreveport, on September 2nd., Dr. Frank B. Waits, aged 44, a native of Louisiana, a graduate of Memphis Hospital Medical College and a member, for many years, of the Shreveport and Louisiana State Medical Societies.

Drs. J. E. Knighton and C. R. Gowan have returned, after a tour of Canada and parts of Europe, with the Study Tour of the "Interstate Postgraduate Assembly of America."

MISSISSIPPI.

On September 15th, the regular quarterly meeting of the East Mississippi Eleven Counties Medical Society was held at the Baptist Church at Amory, Mississippi. The program consisted of the following papers:

1. Diet in Peptic Ulcers. Dr. Seale Harris, Birmingham.
2. Some Points on Lymphogenous Lukemia with report of a case. Drs. M. W. Robertson and W. H. Anderson.
3. Report of a case of Adams-Stokes Syndrome. Dr. H. L. Scales, Starkville.
4. Should the General Practice of Medicine be considered a Specialty? Dr. J. A. Rayburn, Ecru.
5. Contract Practice. Dr. W. R. Hunt, Tupelo.

Dr. G. S. Bryan, of Amory, President of the State Association, had invited all of the "living" ex-presidents of the State Association to be present. In response to this invitation, there appeared Drs. Curry, of Jackson, Feemster, of Tupelo, Rowland of Oxford, Ullman of Natchez, and Underwood of Jackson.

The social session and banquet in the evening proved to be very enjoyable. Dr. F. J. Underwood, who is secretary of the Society, acted as toastmaster, and the speakers of the evening were Drs. Searle Harris, of Birmingham, Alabama; Dr. J. S. Ullman, of Natchez; Dr. Rowland, of Oxford; Dr. Curry, of Jackson; Dr. Anderson, of Booneville; Dr. W. C. Walker, of Houlka, Missisippi.

The Southern Tuberculosis Conference will be held in Memphis, Tennessee, October 14-15-16, 1925, with Dr. Henry Boswell, of Sanatorium, Mississippi, presiding.

The next regular meeting of the Holmes County Medical Society will be held in Lexington, Mississippi, Tuesday, October 13, at 2 P. M. All officers of the Society will be elected for the year 1926 at this meeting.

Dr. J. J. Cazar, formerly of Memphis, has located in Tchula, Mississippi.

Dr. R. E. Howard, of Durant, one of the most beloved members of the Holmes County Medical Society, died August 14, at his home in Durant. Dr. Howard was held in high esteem by all who knew him and the profession will miss him.

Dr. M. P. Winkler, of Tchula, died some weeks ago. Dr. Winkler was never a member of the Holmes County Medical Society.

The East Mississppi Eleven Counties Society (probably the largest and best component society in the Association) held its third quarterly meeting for the current year at Amory, on September 15, 1925. These meetings are always well attended and the programs are of high scientific value.

On August 22nd, Dr. G. S. Bryan of Amory was asked by Dr. Underwood, who wired from Milwaukee, Wisconsin, to visit Tupelo and investigate the report that acute poliomyelitis had been discovered there. It was found that two cases had been discovered there, and that both cases had died within a very few days from their onset. No new cases have been found and since these children lived in widely separated districts it was impossible to connect them one with the other. All contacts were put under strict surveillance and the public assured that every known step for prevention would be taken.

Dr. J. M. Acker, the new Health Officer for Monroe County, has perfected his organization.

Miss Pattie Saunders, State Board Nurse, has done good work in Tate county for the past two months, meeting and instructing the midwives of the county. She had held at least six meetings in each precinct where there were midwives. There were two days of examinations, one for white and one for colored children from seven years down, and with the help of some of the doctors and dentists of the county, as well as some of the workers from Panola county who were in the same work as Miss Saunders, between eighty-five and one hundred children were examined.

A short course was given for the County Club girls by our Demonstration Agent, Mrs. Campbell, at which time there were examined between thirty-five and forty of these girls. Miss Robbie Eddins of Taylor's Precinct was the winner in the health contest.

The Building Committee of the King's Daughters' Hospital, Greenville, announces that plans for a one hundred bed, fire-proof hospital, drawn by Walter F. Schultz, of St. Louis, have been approved. The hospital structure will conform to the Georgian style of architecture, being constructed of re-inforced concrete, hollow tile and face brick with terra cotta trimmings, giving it, when completed, a substantial and handsome appearance. The floors will be of Terrazzo, which is now being used in all modern, fire-proof hospital buildings. Blue prints will be in readiness for advertising for contractor's bids by November 15th. The Building Committee expects to begin the construction of the new hospital by January 1st, and have it ready for occupancy by September 1, 1926.

The Coahoma County Medical Club met on Wednesday, September ninth, after the usual summer vacation of two months. The program consisted of two papers: The Value of a Blood-Count in Making Diagnosis, by Dr. T. G. Huges; Medical History as Told in the Bible, by Dr. R. R. Kirkpatrick. This Club is not affiliated with the State Association, but is, in reality, a monthly get-together Club for the physicians of the county.

The official society for this section is the Clarksdale and Six Counties Medical Society which meets twice a year, the next meeting being on November 4th.

Mrs. Mattie Leahy, R. N., has taken charge as Superintendent of Nurses at the Charity Hospital, Natchez, Mississippi.

The Natchez Sanatorium has rented an adjacent residence, which will be adapted as a nurses' home. The former nurses' home, adjoining the Sanatorium, will be made into wards.

The Mississippi State Board of Health, since the recent appointment by Governor Whitfield, is composed of the following:

Dr. J. P. Wall	Jackson, 8th Dist.
Dr. J. J. Haralson	Forest, 5th Dist.
Dr. W. W. Crawford (Pres.)	Hattiesburg 6th Dist.
Dr. L. B. Austin	Rosedale, 3d Dist.
Dr. J. W. Lipscomb	Columbus, 1st Dist.
Dr. T. W. Holmes	Winona, 4th Dist.
Dr. J. M. Dampeer	Crystal Springs, 7th Dist.
Dr. W. H. Watson	Brandon, 8th Dist.
Dr. E. M. Gavin	Richton, 6th Dist.
Dr. Ira B. Seale	Holly Springs, 2nd Dist.
Dr. A. J. Brown	Clarksdale, 3d Dist.
Dr. S. E. Eason	New Albany, 2nd Dist.
Dr. F. J. Underwood (Sec.)	Jackson, 8th Dist.

BUREAU OF VITAL STATISTICS MISSISSIPPI STATE BOARD OF HEALTH.

The Bureau was established November first, 1912, and was organized for the purpose of keeping the records of births, deaths, and notifiable diseases in the State of Mississippi.

With the active co-operation of the 1500 physicians in the State, the 1250 local registrars that were appointed to represent the Bureau in the various voting precincts in the State, the 300 and more casket sellers and undertakers, not omitting the 3000 colored midwives, who, though as a rule are very ignorant, have co-operated to the best of their ability—the Bureau of Vital Statistics has succeeded in its mission, and within a very few years after its establishment, the State of

Mississippi was admitted into the Death Registration and Birth Registration Areas of the Bureau of the Census of the National Government.

Up to January first, 1925, this Bureau had recorded 506,751 birth, and 272,468 deaths. This Department handles annually the following approximate number of reports from over the State:

43,000 birth certificates from local registrars.
22,000 death certificates from local registrars.
4,000 weekly reports from county health officers.
1,000 monthly reports from county health officers.
20,000 monthly reports from casket sellers.

In addition, it makes 52 weekly and 12 monthly reports to the U. S. Public Health Service; copies 65,000 birth and death certificates for the U. S. Bureau of the Census; writes about 6,000 personal letters, about 10,000 circular letters, and about 7,000 form letters prepares and mails out about 40,000 certificates to new mothers; sends out 2,000 reports to the newspapers; counts and tabulates under several subdivisions all reports of births, deaths, and disease; issues hundreds of certified copies of birth and death certificates—as well as attending to a multitude of minor matters.

It has been and is now the aim and desire of the Director of this Bureau to bring its operations into closer view of the general public, and to endeavor to convince the people generally that it is operating for their immediate and future needs, especially in legal matters where proof of circumstances of a death or a birth may be required. It is a depository of family records that will be preserved indefinitely, so that even the grand-children of the babies of today may be able to trace back valuable information concerning their ancestors. It keeps the people of the various counties informed through their local newspapers of the number of cases of the various contagious and infectious diseases present in their midst month by month.

New regulations are passed by the Mississippi State Board of Health as found necessary for the proper conduct of the Bureau of Vital Statistics in its efforts to gather all available data on births, deaths, and communicable diseases.

The following table contains interesting data relative to the health conditions in the State of Mississippi:

State	White Death Rate
Kentucky	10.1
Georgia	10.5
Alabama	9.5
Louisiana	10.6
South Carolina	10.3
Virginia	10.3
North Carolina	10.3
MISSISSIPPI	9.1

The white death rates of the other Southern States were not available, but it will be seen that Mississippi has the lowest white death rate of all the Southern States mentioned in the above tabulation.

That the State Board of Health is functioning properly and efficiently is revealed by a reference to morbidity and mortality statistics collected for the State during the past ten years. The following diseases in this length of time have been reduced by the respective percentages:

Diseases	Cases	Deaths
Tuberculosis	55%	26%
Typhoid Fever	44%	47%
Malaria	32%	64%
Pellagra	46%	65%

DIED.—It is with sorrow that we record the death of Dr. Ephraim M. Ewing, of Napoleonville, who died in Asheville, N. C., on August 27th. He was 35 years old. Dr. Ewing was awarded the Sc. D. degree by the University of New York (Major subject Physiology) when he was only 22 years old. He had then completed one year in special study of Physiology at the University of Missouri. While doing advanced work for the M. A. degree and two years of special work in this branch at the University of New York. He was then Assistant Professor of Physiology in the University of New York—Bellevue Medical College—and advanced to Associate Professor, and the year he broke down in health, had been nominated for the Chair of Pathologic Physiology, a department which he created in the college. Later he took the M. D. degree doing advanced medical work during his vacation at various medical centers. In 1914-15, he held the Chair of Physiology in Fordham Medical College, New York, at the same time continuing his connection with New York Bellevue Medical Department. After his health broke in New York he went West and seemingly recovered, and thinking he must not continue the confining Laboratory work he took an interneship in Touro Infirmary, New Orleans, preparatory to active practice. He was elected Assistant Professor of Physiology in Tulane University, but his health broke again before the Fall Opening. While in New Orleans he made an impress upon leading physicians in that city that causes his untimely passing to be viewed with infinite regret. He died a victim of overwork.

Dr. Ewing is survived by his wife, who was Miss Olivia Munson, and one child; his mother and father, Dr. F. C. Ewing, of Alexandria, and two bothers, D. M. Ewing, of New York, and P. K. Ewing, of New Orleans.

BOOK REVIEWS

Physical Diagnosis of Diseases of the Chest: By Joseph H. Pratt, M. D., and George Bushnell, Ph.D., M. D., with 166 illustrations. Philadelphia and London. W. B. Saunders Co. 1925.

This is a complete treatise dealing with the physical diagnosis of diseases of the chest. In a comprehensive manner the prerequisites of auscultation and percussion and a study of the normal standards in the healthy individual are discussed. After familiarizing the reader with the fundamentals of the art of physical diagnosis the authors discuss the subject from the anatomical, physiological and pathological viewpoint. A difficult subject is thus made more tangible for the reader.

In addition to dealing in full with the usual topics included in a treatise on diseases of the chest, the authors devote a chapter to the newer methods of clinical diagnosis, including radiographic examination, blood pressure determination and the various graphic methods.

This book affords good reading for the busy practitioner who wishes to perfect himself in the subject of physical diagnosis, also a good reference book for the student who is just beginning the study of this important subject.

FRANCIS M. MUNSON, M. D.

Management of Diabetes: Treatment by Dietary Regulation and the Use of Insulin. A Manual for Physicians and Nurses Based on the Course of Instruction Given at the Presbyterian Hospital, New York. By George A. Harrop, Jr., M. D.

With the remarkable increase in medical research, particularly in the United States and Canada, the passage of a decade brings a new medical literature, and frequently a new nomenclature. This makes it difficult for the man in active clinical life to sort out the essential facts from the litter that clogs the medical press, hence such manuals as this are a welcome boon to the busy practitioner. Through the generosity of John D. Rockefeller, Jr., it became possible to demonstrate the proper use of insulin to nearly six hundred physicians, and this little book was prepared for reference after completing the course at the Presbyterian Hospital, New York City. It is neither too technical nor is it exhaustive; it is just a handy volume for the doctor's desk. It summarizes our present knowledge of the disease and the use of insulin which is adequate for the successful care of individuals ill with diabetes. Unlike a number of other diabetic manuals that have appeared lately, it is a book for the physician and nurse, not for the patient.

FRANCIS M. MUNSON, M. D.

Eat Your Way to Health: A Scientific System of Weight Control. By Robert Hugh Rose, A. B., M. D. New Edition, Thoroughly Revised and Enlarged. Funk and Wagnalls. New York and London. 1924.

Doctor Rose's book was written for the use of intelligent people who really desire to reduce their weight and to maintain proper weight but who are not addicted to dietetic fads and fancies. It is based upon sound scientific principles and upon twenty years study of the subject. The reader is taught how to handle his own case. He is informed, in popular language, of the stuff he is made of, how the human machine works and of the dangers of obesity and high blood pressure. The esthetic side of over-weight is not neglected in the discussion. Tables and statistics are given, but not in a tiresome manner. A number of menus are outlined and the human interest phase of the subject is not forgotten when the author gives the menus for two weeks instead of for one week. One is not so certain of what he is going to have for dinner if he is on a two week dietary schedule. Two interesting and timely topics discussed are "Vitamines and Deficiency Diseases" and "Correct Diet and Good Teeth." This book is a useful contribution to the subject matter.

FRANCIS M. MUNSON, M. D.

Human Constitution: A Consideration of Its Relationship to Diseases: By George Draper, M. D. Illustrated. Philadelphia and London. W. B. Saunders Co. 1924.

This volume is a systematic study of the constitutional makeup, going deeply into the subject and discussing those methods which show the characteristics of the individual, the means of consulting them and through the observation of these methods of classification of the human race, the susceptibility to disease, the association of certain physiognomy and other characteristics with definite maladies. The study of the various "panels," close observation of which is of material assistance in diagnosis, opens a new and constructive field in medicine and will prove in time a very important and necessary adjunct in observation and care of medical cases. The book is very carefully written, clearly expressed and of extreme interest. It proves beyond any doubt the necessity and importance of a study in its relation to the diseases of mankind.

The Dentist's Own Book: A faithful account of the experience gained during forty-six years of Dental Practice, including a complete bookkeeping and recording system and a description of the management of a dental

practice. By C. Edmund Kells, D. D. S., New Orleans, La., with 116 illustrations. C. V. Mosby Company. St. Louis. 1925.

This book is entitled the "Dentist's Own Book," but it is in reality, Dr. Kells' "Own Book," for it is not an impersonal dentist or an abstract personality that is here portrayed, but it is Dr. Kells himself whom we see projected on every page and paragraph of this volume. It is the same alert, inventive, skillful, ever punctual and reliable Dr. Kells, known to his professional friends and to the people of New Orleans, these past four decades and over, as a Master in his profession and as an outstanding figure in the civic life of the community. This is indeed an unusual book and one that seldom comes across the path of a reviewer of the local professional literature in the course of a generation. It is the cap and crown of a life of tireless activity devoted whole-heartedly and fruitfully, to the service of the dental profession. It is the epilogue of a long narrative of travel over rocky and uncharted roads ending in the final attainment of the goal—the pinacle of a commanding and legitimate success. This book is in essence the **vade mecum** and chart which has guided the author in his travels through the mazes of his professional life which he unfolds with most precise and unequivocal directions for the benefit of those who may chose to follow in his footsteps. To those who are familiar with Dr. Kells' distinguished career and have been privileged to observe him at close range in the busy routine of daily life, the autobiographical character of this book is at once apparent. It is so accurately photographic in its minute production of the author's life experience, of his attitude of mind, of his principles, his practice, his methods and of every act that is related to the exercise of his science and art, as it affects him and his professional environment, that one would wonder, did he not know Dr. Kells' meticulous habits of observation, how he had succeeded in preserving so complete and accurate a mental picture of all his methods and performances.

It is the personal quality that gives this book its absorbing interest, its originality, its wisdom and its value as an inexhaustible source of inspiration and guidance in all the difficulties, doubts and perplexities that are likely to assail the practitioner of dentistry, whether young or old, in the conduct of his professional life. It is the product of a matured experience, based upon a rare capacity for minute and profitable observation. The lessons gathered by the author in the course of well nigh half a century of practice, as a leading exponent of dentistry in the South, have been all recorded and retained with almost stenograpic fidelity. Every thought, suggestion or experience that could contribute to the improvement and greater efficiency of the dental service has been treasured and utilized in the author's sleepless effort to attain the summit of his professional ideals. Every page of the book breathes the spirit of the earnest, honest and uncompromising devotee to the highest aspirations of his professional cult. Dr. Kells has been wedded to his profession for nearly half a century, and yet he is just as ardent, enthusiastic and faithful a lover of his Art as he was when he first linked his fate to dentistry far back in the later '70's, in the workshop of his father's well remembered dental office on Dauphine Street. But while love of his profession has been Dr. Kell's dominant and absorbing passion, he has never allowed it to run riot with his judgment and common sense. Contrary to the usual experience of enthusiasts, he has always kept his feet on **terra firma** while allowing his brilliant and inventive imagination to roam among the clouds. How thoroughly he has tempered his affection with a large measure of "business sense," is shown in the second part of the volume in which he deals with "Dental Economics," in all its phases, from "Business Management," "Bookkeeping," "Accounts," "Appointments," "Partnerships," "Insurance," "Investments," down to the styles of stationary and letter forms for collecting bad debts from delinquent clients. In all of which he displays a judgment and perspicacity that would credit the intelligence of an accomplished financier.

But it is with the third division of the book, entitled "Jambalaya," that we are brought nearest to the personality of the author. Here we are reminded of that masterpiece of the Creole cuisine by the "numberless ingredients" that enter into the composition of the recipe for the successful practice of dentistry, which Dr. Kells has collected with the cultivated taste of a discriminating connoisseur, for the delectation of his readers. It is not surprising that in this section, which covers a hundred and eleven royal octavo pages, we should find the most diversified subjects presented in a kaleidioscopic, and always interesting, fashion, varying from the minutest features of the technics of dentistry to a broad discussion of the fundamental principles of conduct in all its personal, ethical and social relations. Such headings as "Service," "The Gospel of Efficiency," "Pain," the "Question of Fees," "Demoralizing Agencies," "Keeping Busy," "Cleanliness," "Prophylaxis," and all along the line to "Christmas Cards," "Book Plates" and "Wedding Bells," are all strung into a bouquet, like a large bunch of the author's favorite roses, fresh and fragrant from the plentiful garden of his thoughts. Everywhere in the text we find

innumerable lessons pointed by a striking example or vivified by an anecdote, a humorous storiette or some apt quotation, that gives the book a human interest and that makes the reading delightfully recreative. To combine the pleasurable with the useful, **delectando paritorque docendo,** appears to have been the key note of the author's purpose in writing this book. But the chief appeal that this book has or should have for every aspiring young dentist who is earnestly seeking the paths that lead to success in his profession, is the example set before him by the distinguished author's career and by the precepts that he inculcates with so much vigor and with the undeniable proof of his own success. The chapters on the meaning of "Success," on "Service" and on the "Gospel of Efficiency," are saturated with the author's wholesome philosophy. No better antidote could be provided in the dental schools for the poison of sordid commercialism, quackery and dishonesty that circulates so freely in the ranks of the profession than by attaching this book to the curriculum side by side with the purely scientific and didactic texts. While this work is dedicated to the dental profession it is equally interesting and instructive in its fundamental concepts to the student and practitioner of medicine. It furnishes nutritious food, rich in vitamines, to any mind that is hungry for guidance and wise counsel, not only in the highest, but in the most ordinary and practical problems of the professional life, and it will supply a wholesome corrective for the thoughtful who suffer the ills that come from breathing a tainted moral environment.

The Journal looks upon the appearance of Dr. Kells' book as an event of no small significance in the history of Dentistry in New Orleans and congratulates the dental profession on giving expression to its loftiest traditions and aspirations through the example and voice of one of its ablest and most respected exponents.

R. M.

Operative Room Procedure for Nurses and Internes: By Henry C. Falk, M. D. G. P. Putnam's Sons. New York and London. 1925.

This book is one worthy of attention as it deals with details of an operating room which are foremost in assisting an operator to systematize his work as to time and thoroughness. It is primarily intended for nurses, but internes and surgeons can gain much knowledge from its contents. The book is subdivided into chapters dealing with the fitting of an operating room, its personnel, apparel, supplies (gauze, gloves, sutures, drains, etc.), preparation of patient and hands, arrangement of trays, care of instruments, "setting up" the operating room, positions on the operating table, and manual signs. Part 2, with its sub-chapters, deals with operations, giving as much detail as it is necessary, so the assistants can foresee the operator's needs. This volume contains material, not boring in unnecessary details, which should be valuable to any operating room staff.

EMILE BLOCH, M. D.

PUBLICATIONS RECEIVED.

C. V. Mosby Company, St. Louis: "Symptoms of Visceral Diseases," 2d ed., by Francis Marion Pottenger, A. M., M. D., LL.D., F. A. C. P. "Old and New Viewpoints in Psychology," by Knight Dunlop. "Methods in Surgery," by Glover H. Copher, M. D. "The Norman Diet," by W. D. Sansum, M. S., M. D. "Empyema Thoracis," by Evarts A. Graham, A. B., M. D. "Personal and Community Health," by Clair Elsmere Turner. "Eye, Ear, Nose and Throat Manual for Nurses," by Roy H. Parkinson, M. D. "Ocular Therapeutics," by Doctor Ernest Franke, translated by Clarence Loeb, A. M., M. D. "Allergy; Asthma, Hay Fever, Urticara and Allied Manifestations of Reaction," by William W. Duke, Ph. B., M. D.

W. B. Saunders Company, Philadelphia and London: "Text-book of General Bacteriology," by Edwin O. Jordan, M. D., 8th ed., rev. "Preventive Medicine," by Mark F. Boyd, M. D., M. S., C. P. H., 2nd ed., rev. "Physical Chemistry in Biology and Medicine," by J. F. McClendon, Ph.D., and Grace Medes, Ph.D. "Manual of Gynecology," by John Cooke Hirst, M. D., F. A. C. S., 2nd ed., rev. "American Illustrated Medical Dictionary," ed. by W. A. Newman Dorland, A. M., M. D., F. A. C. S., 13th ed., rev.

MacMillan Company, New York: "Text Book of Orthopedic Surgery for Students of Medicine," by James Warren Sever, M. D.

Paul B. Hoeber, Inc., New York: "Bone Sarcoma," by E. A. Codman, M. D.

The Physiatric Institute, Morristown, N. J.: "Treatment of Kidney Diseases and High Blood Pressure," by Frederick M. Allen, M. D., Part 1.

Boni & Liveright, New York: "The Medical Follies," by Morris Fishbein, M. D.